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ABSTRACT

This document is a compilation of 90 successful interdisciplinary projects and activities and integrated academic and vocational curriculum ideas implemented in Florida during the past 3 years. The activities and projects have been submitted by teachers and have not been officially evaluated or reviewed. Each description provides this information: school/district; contact person with address and telephone number; subject/program area(s); grade(s); description; instructional activities; materials and resources; and comments. Broad topic areas include the following: agriculture; algebra; U.S. government; U.S. history; art; automotive; biology; building construction; business education; accounting; computer applications; keyboarding; office technology; word processing; business law; business mathematics; carpentry; chemistry; child care; child development; computer literacy; construction trades; criminal justice; diversified cooperative training; drafting; drama; drivers education; dropout prevention; economics; electronics; English; applied communication; language arts; family and consumer sciences; foreign language; graphic arts; health occupations; history; home economics; journalism; marketing; masonry; mathematics; applied mathematics; music; personal fitness; physical education; physical science; physics; principles of technology; science; small engines; social studies; Spanish; technology; technology education; and television production. An index is provided. (YLB)

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Promising Practices in Florida: Integrating Academic and Vocational Education

1996

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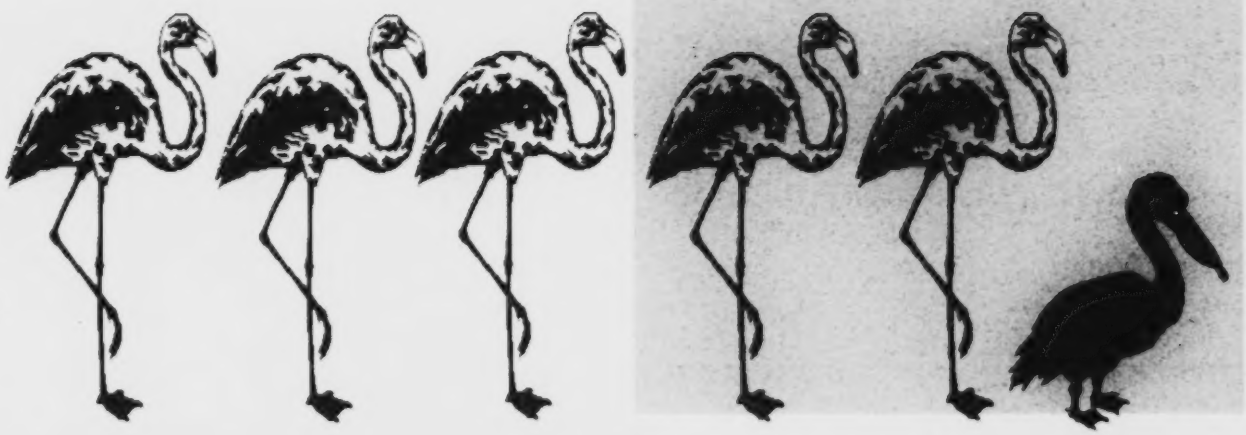
January 1996



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INTRODUCTION

Throughout Florida, teachers of all disciplines are creatively combining their skills and efforts to lead their students out of the classroom and into the real and future world. Our students are not only learning the connections between math and English and science and art, but are experiencing how academics translate into the world of business and industry.

Provided with more opportunities to plan with their colleagues, teachers are forming teams that help one another develop innovative, interdisciplinary projects and integrated academic and vocational curricula.

This document is the second edition of a sampling of exciting projects and activities implemented in Florida during the past three years. Its purpose is to encourage other educators to consider new ideas and to foster activities that will help Florida's students better relate to their world now and in the coming century.

The activities and projects listed in this edition were submitted by busy teachers who took the time to document a description of the project or activity, the program area(s) involved, a summation of the instructional activities, the materials and resources used, and a few overall comments.

Please note that these activities and projects have not been officially evaluated or reviewed.

We are continuing to collect examples of successful interdisciplinary projects and activities and integrated curriculum ideas to share with other teachers in the state. If you have effectively implemented such an idea or project, please complete the form on the following page and return it to

Betty Jones
Applied Curriculum Education Specialist
445 West Amelia Street
Orlando, FL 32801

We would like to thank to all the teachers who shared their ideas for this edition.

PROMISING PRACTICES IN FLORIDA
INTEGRATING ACADEMIC AND VOCATIONAL EDUCATION

Contribute your ideas. Jot down a successful curriculum integration activity so we can share it with others.

School/District:

Contact Person: *(Please include e-mail address, if available.)*

Subject/Program Area(s):

Grade(s):

Description: *(Give a brief overview of the purpose of the project and the subject and program areas involved.)*

Instructional Activities: *(Describe the activities or assignments of the project including who makes and who carries out each activity or assignment.)*

Materials and Resources:

Comments:

Please send completed form to: **Betty Jones**
Applied Curriculum Education Specialist
445 West Amelia Street
Orlando, FL 32801

AGRICULTURE MARKETING

SCHOOL/DISTRICT:

Grand Ridge High School
Jackson County Schools

CONTACT PERSON:

Don Wilson, Principal
Grand Ridge High School
6925 Florida Street, P.O. Box 208
Grand Ridge, FL 32442-0208
904/592-5161

SUBJECT/PROGRAM AREA(S):

Agriculture Marketing
Business Education/
Computer Applications
English
Mathematics

GRADE(S):

9–12

DESCRIPTION:

In an effort to help students link academic and vocational studies, teachers from several disciplines focus their lessons on an agriculture marketing project.

INSTRUCTIONAL ACTIVITIES:

- The agriculture teacher assigns students a project on the sales and marketing of crops or livestock in which they collect and analyze data and then make an oral presentation.
- The English teacher has students write a report on the marketing project and works with the students on their oral presentations.
- The math teacher has the students figure profit margins, rates of production, costs, etc.
- The business computer applications teacher has the students record and analyze the data collected and, with appropriate software, develop an effective display of the results of their research data.

MATERIALS AND RESOURCES:

The materials needed relate to the topics selected by the students.

COMMENTS:

ANALYZING BONE CHANGES

SCHOOL/DISTRICT:

Jackson Academy of Applied Technology
Jackson County Schools

CONTACT PERSON:

Gwen Conner
Jackson Academy of Applied Technology
3932 Technology Circle
Marianna, FL 32448
904/482-9666

SUBJECT/PROGRAM AREA(S):

Business Education/Word Processing
English/Language Arts
Health Occupations

GRADE(S):

10–12

DESCRIPTION:

This activity facilitates learning about changes in bones in the human body. It can also be adapted for units on muscles and other anatomical structures. The written and oral presentations could be joint grades in English and word processing if the three teachers work together on this activity.

INSTRUCTIONAL ACTIVITIES:

- In the health occupations class, students are divided into groups. Each group of students completes the following steps:
  - Place a chicken bone into a plastic cup and cover the bone completely with vinegar.
  - Cover the top of the cup with plastic wrap and incubate at room temperature.
  - Check the bone at 24-hour intervals during a week to identify changes.
- For the English class, each team of students maintains a journal observing the changes in the bone. Each team then writes a report describing the changes in the soaked bone that took place and their analysis of what caused the changes.
- In word processing, the students process their reports before turning them in.
- All three teachers grade the report: the health occupations teacher for content, the English teacher for language arts and writing skills, and the word-processing teacher for the design and accuracy of the final document.

MATERIALS AND RESOURCES:

Each group of students is given one chicken bone, vinegar, a plastic cup, and plastic wrap.

COMMENTS:

Extension of this activity could include an oral group presentation to the class about the cause and effect.

ANTHOLOGY OF STUDENT LITERARY WORKS

SCHOOL/DISTRICT:

Frostproof High School
Polk County Schools

CONTACT PERSON:

David Lewis
Frostproof High School
1000 North Palm Avenue
Frostproof, FL 33843
941/635-2221

SUBJECT/PROGRAM AREA(S):

Art
Business Education
Diversified Cooperative Training
English/Language Arts

GRADE(S):

9–12

DESCRIPTION:

Through cooperative efforts, an anthology of student literary works is created, marketed, and sold by the students.

INSTRUCTIONAL ACTIVITIES:

- A committee of students selects student literary works to be included in the anthology.
- The art students draw the illustrations for the book.
- The business students, using appropriate word-processing software, prepare the document.
- Students in the Diversified Cooperative Training program (DCT) market and sell the finished product.

MATERIALS AND RESOURCES:

The materials used for the project are the normal ones associated with each department.

COMMENTS:

This teacher-initiated project is very popular and has become a fund-raiser with each department receiving part of the profits.

APPLIED PHYSICAL SCIENCE CURRICULUM GUIDE

SCHOOL/DISTRICT:

Martin County Schools
St. Lucie County Schools
Indian River County Schools
Okeechobee County Schools

CONTACT PERSON:

David Hall
Martin County High School
2801 South Kanner Highway
Stuart, FL 34997
407/287-0710

SUBJECT/PROGRAM AREA(S):

Physical Science
Small Engines

GRADE(S):

9–12

DESCRIPTION:

Vocational and science teachers from eight high schools cooperatively developed lesson plans in a curriculum guide for three physical science units. The guide is based on three scenarios: mapping, sailing, and small engines.

INSTRUCTIONAL ACTIVITIES:

The scenarios or story lines serve as the framework for each unit as well as a focus on realistic problems. In mapping, measurement skills are emphasized in lessons employing field site problems. In the sailing scenario, a videotape of sailing races and oceanic treks set the stage for demonstrating unit problems. In small engines, students deal with a nonfunctioning lawn mower to develop skills related to measuring, conversions, and electricity. Performance-based assessments are featured in the units. Teachers use instructional strategies related to facilitating rather than stand-and-deliver lectures.

MATERIALS AND RESOURCES:

Materials and resources for individual lessons are included in the guide. Part of the design plan was to only use materials that were inexpensive and readily available.

ART DESIGN AND DESKTOP PUBLISHING

SCHOOL/DISTRICT:

Orange County Schools

CONTACT PERSON:

Diane Culpepper, Business Technology Consultant
Orange County Public Schools
445 West Amelia Street
Orlando, FL 32801
407/849-3200

SUBJECT/PROGRAM AREA(S):

Art
Business Education

GRADE(S):

9–12

DESCRIPTION:

In an effort to address a growing job market of graphic arts and desktop publishing, two teachers used their expertise to design an integrated curriculum of art design and computerized desktop publishing. The teachers received a $14,000 superintendent's grant to "pilot" the program. Students met with both instructors but completed only one set of objectives and curriculum.

INSTRUCTIONAL ACTIVITIES:

The students
- learned a variety of computer graphic software packages and were able to create their own designs,
- redesigned compact disc (CD) covers to incorporate elements of color and design,
- developed the school's curriculum guide,
- designed a school logo,
- designed all school programs and brochures, and
- developed a portfolio of their work that was evaluated by businesspeople in the field.

MATERIALS AND RESOURCES:

- MS-DOS (Tandy) and MacIntosh computers, scanners, and laser and color printers
- PageMaker page layout software and a variety of graphic arts software packages (primarily Arts-n-Letters and Corel Draw)

COMMENTS:

This is a program that could easily be replicated at other schools with the necessary hardware and software. The two teachers who designed the curriculum made an effort to have student performance standards checked by people in the graphic arts industry. This verification by people in the industry gave the curriculum credibility as relevant material. Both teachers were educated about the demands of the graphic arts industry and developed an appreciation for each other's knowledge and talents.

ARTIFICIAL INSEMINATION

SCHOOL/DISTRICT:

Crystal River High School
Citrus County School

CONTACT PERSON:

Lisa Merritt, Biology Teacher
Crystal River High School
1205 NE 8 Avenue
Crystal River, FL 32629
904/795-4641

SUBJECT/PROGRAM AREA(S):

Agriculture
Biology

GRADE(S):

9–12

DESCRIPTION:

Since artificial insemination is a topic covered in both agriculture and biology, teachers from both disciplines planned a joint unit to allow students in both classes the opportunity to hear the guest expert lecturers from the University of Florida.

INSTRUCTIONAL ACTIVITIES:

The agriculture teacher and biology teacher introduced the unit to their classes separately. Vocabulary and key concepts were presented through class discussions. Guest lecturers from the University of Florida talked to the combined classes about artificial insemination. Then, using cows from the Future Farmers of America (FFA), the lectures demonstrated the artificial insemination of the cows. The students in both classes discussed and compared the different thawing processes of frozen semen to determine viability of sperm. Students completed the lab reports outlined in "Continuity of Life," *Applied Biology/Chemistry*.

MATERIALS AND RESOURCES:

The cows were the property of the FFA club. The agriculture instructor made arrangements for necessary materials and resources with the University of Florida. *Applied Biology/Chemistry* "Continuity of Life" was provided by the biology teacher.

COMMENTS:

Through joint planning and resource sharing, a larger number of students had the opportunity to see an example of applied biology in the agricultural field, rather than just reading about the process in a textbook.

AUTO MECHANICS AND PHYSICS CONCEPTS

SCHOOL/DISTRICT:

Lyman High School
Seminole County Schools

CONTACT PERSON:

Peter Gorman, Principal
Lyman High School
1141 Southeast Lake Avenue
Longwood, FL 32750
407/831-5600

SUBJECT/PROGRAM AREA(S):

Automotive
Physics/Principles of Technology

GRADE(S):

11–12

DESCRIPTION:

There is a natural marriage between the principles of technology program and the automotive program. The two teachers plan interdisciplinary activities throughout the year, using the automotive area as the "real-world" lab.

INSTRUCTIONAL ACTIVITIES:

Examples of interdisciplinary teaching of hydraulic and pneumatic concepts include showing the physics of jacking up a car, pumping up the rear end of cars, and checking tire pressure.

MATERIALS AND RESOURCES:

Principles of technology curriculum and automotive curriculum

COMMENTS:

Since physics is an integral part of the automotive program, the cross-discipline planning provides students with a rich blend of abstract and concrete concepts.

AUTOMOTIVE "OSHA INSPECTORS"

SCHOOL/DISTRICT:

Apopka High School
Orange County Schools

CONTACT PERSON:

Martha Cooper, Tech Prep Coordinator
Apopka High School
555 West Martin Street
Apopka, FL 32712
407/889-4194

SUBJECT/PROGRAM AREA(S):

Automotive
Business Education
English

GRADE(S):

9–12

DESCRIPTION:

To call attention to the importance of written and oral communication skills in the automotive program, a beginning-of-the-year assignment was for each student in the program to be an "OSHA inspector." This assignment, given during the safety unit, assumed that each inspector had found 10 OSHA violations during a recent visit to a local automotive shop.

INSTRUCTIONAL ACTIVITIES:

The "OSHA inspector" students wrote letters to the automotive shop about the observed violations. Solutions for each violation had to be included.

The automotive instructor incorporated the RAFT writing strategy that is used across the curriculum in the school:
Role of the writer—in this case, OSHA inspector
Audience determined—auto body shop with OSHA violations
Form—business letter that identified unsafe practices/site violations and recommendations for correcting violations
Topic—citing violations of and recommendations for safety procedures

To make sure students followed the correct format, the English and business education teachers served as guest lecturers on correct business letter format, paragraph development, etc.

MATERIALS AND RESOURCES:

The resources used were the Auto Mechanics Safety Unit, Zip Code Directory and dictionaries, and English and business education teachers to review the six parts of the business letter as well as grammar and usage.

COMMENTS:

The interdisciplinary project was graded jointly by three teachers.

BEOWULF AND MODERN HEROIC QUALITIES

SCHOOL/DISTRICT:

Hudson High School
Pasco County Schools

CONTACT PERSON:

Art O'Donnell, Principal
Hudson High School
14410 Cobra Way
Hudson, FL 34669
813/863-1594

SUBJECT/PROGRAM AREA(S):

Child Development
English

GRADE(S):

12

DESCRIPTION:

Wanting students to understand that we can learn from literature, the child development and English teachers use *Beowulf* to talk about modern heroic qualities.

INSTRUCTIONAL ACTIVITIES:

- The child development teacher, serving as a "guest lecturer," describes basic human needs common to all people.
- The English class reads *Beowulf*, looking for ways human needs are satisfied.
- The class discusses *Beowulf* and lists heroic qualities needed to satisfy human needs in the Anglo-Saxon era.
- Groups of students list modern qualities most needed and admired for the same purpose.
- The students write a paper comparing and contrasting the two.

MATERIALS AND RESOURCES:

British literature books and computers

COMMENTS:

BIOGRAPHY OF A NEW FRIEND

SCHOOL/DISTRICT:

Sebastian River High School
Indian River County Schools

CONTACT PERSON:

Danny Tyler
Sebastian River High School
9001 90th Avenue
Sebastian, FL 32958
407/589-9696

SUBJECT/PROGRAM AREA(S):

English
Social Studies

GRADE(S):

9–11

DESCRIPTION:

Students in English and social sciences classes participate in a joint project to interview and write biographies of nursing home patients.

INSTRUCTIONAL ACTIVITIES:

Each student interviewed a resident of an Indian River County nursing home to elicit information about the resident's personal, family, and professional background and the historical events that helped to shape his or her life and philosophy. Each student then wrote a biography of the resident. Each biography was published, and two copies printed—one for the resident and one for the resident's grandchildren so that the family history and traditions can be preserved.

As a result, the students
- practiced interviewing, writing, printing, publishing, and communication skills,
- researched historical and medical information of the resident's era, and
- applied integration skills to produce and deliver biographies.

MATERIALS AND RESOURCES:

Students were allowed to use any resources available in the school or local libraries as well as newspaper or other publications the nursing home residents might have. The students will need access to a computer and printer.

COMMENTS:

BIOLOGY "HEALTH INSPECTORS" AND HOME ECONOMICS

SCHOOL/DISTRICT:

Crystal River High School
Citrus County Schools

CONTACT PERSON:

Lisa Merritt, Biology Teacher
Crystal River High School
1205 NE 8 Avenue
Crystal River, FL 32629
904/795-4641

SUBJECT/PROGRAM AREA(S):

Biology
Home Economics

GRADE(S):

9–12

DESCRIPTION:

While teaching the Disease and Wellness Unit in *Applied Biology/Chemistry*, the instructor collaborated with the home economics teacher to provide a "real-world" experience for the biology students. The biology students became "health inspectors" of the Crystal River High School cafeteria that is run by the home economics students.

INSTRUCTIONAL ACTIVITIES:

The biology teacher obtained the official state health inspection report forms for the students to use. The "inspectors" checked the food service areas of the cafeteria and made notes on the health inspection report form. The inspectors then prepared a formal report on the findings for the principal and cafeteria managers. An oral presentation summarizing the findings was also made to the cafeteria managers by the inspectors.

MATERIALS AND RESOURCES:

State of Florida health inspection report forms

COMMENTS:

This interdisciplinary activity could be expanded by including mathematics students to analyze the data obtained and business students to word process and edit the final report.

BLOOD DRIVE PROMOTIONAL VIDEOTAPES

SCHOOL/DISTRICT:

Miami Senior High School
Dade County Schools

CONTACT PERSON:

Nancy Fowler and Roberta Meyer
Miami Senior High School
2450 SW First Street
Miami, FL 33135
305/649-9800

SUBJECT/PROGRAM AREA(S):

Drama
English/Language Arts
Health Occupations
Television Production

GRADE(S):

11–12

DESCRIPTION:

The need of the community for more blood donors prompted a joint venture of health occupations and language arts classes to encourage greater student participation in the spring blood drive.

INSTRUCTIONAL ACTIVITIES:

- The students were given instruction in persuasive writing.
- A guest speaker made a presentation on blood donation and the objections to it.
- A drama student made a presentation on acting to the camera.
- Groups were formed to write scripts.
- Rehearsal time and practice taping sessions were scheduled.
- The final taping was completed in a TV production studio.
- The students evaluated the tapes in class.

MATERIALS AND RESOURCES:

- American Red Cross pamphlets and brochures
- Drama instructor and student
- Television production instructor and class

COMMENTS:

Students learned that doing a TV program is not as easy as it looks. Juniors who made this year's tapes will do personal appeals for donors in classrooms with the senior students to supplement their video segments. Next year, students will make videotapes for both fall and spring blood drives.

BOARD GAME

SCHOOL/DISTRICT:

Cocoa High School
Brevard County Schools

CONTACT PERSON:

Alexandra Penn
Academy Coordinator
Cocoa High School
2000 Tiger Trail
Cocoa, FL 32926
407/636-7554

SUBJECT/PROGRAM AREA(S):

Business Education/Word Processing
English/Language Arts
Technology Education

GRADE(S):

9–12

DESCRIPTION:

To help them understand *Beowulf,* students produce a board game complete with written directions, game pieces, playing board, and a way to advance the players.

INSTRUCTIONAL ACTIVITIES:

Students are given the following situation statement: "Your toy company has been retained to develop a board game based on the events and facts of *Beowulf.* The game must be entertaining while reinforcing facts and events."

Cooperative learning groups analyze the events and facts related to *Beowulf.* Each group interacts to gather information and determine the best application to a board game. Students develop, produce, and test the game. A board game with written directions is the final product. Allow five days for developing the game, two days for testing the game, and three days for revising and developing the final product.

MATERIALS AND RESOURCES:

Poster board, markers, or any other teacher-approved items. Investment capital is set at $2.00 or less.

COMMENTS:

Evaluation may include participation, written directions, product, and peer evaluation.

BUILDING A COMPOST CENTER

SCHOOL/DISTRICT:

West Orange High School
Orange County Schools

CONTACT PERSON:

Ann Wincey
West Orange High School
1625 South Beulah Road
Winter Garden, FL 34787
407/656-2424

SUBJECT/PROGRAM AREA(S):

Agriculture
Biology/Applied Biology
Chemistry

GRADE(S):

10–11

DESCRIPTION:

As a joint project, the students in applied biology/chemistry and agriculture classes created and monitored a compost center. The composted dirt was then used for growing plants as part of a study.

INSTRUCTIONAL ACTIVITIES:

Using food wastes from the school cafeteria, students built a compost center. Students studied decomposition by microorganisms and monitored temperature for maximum decomposition. In addition, they compared the growth of radish plants in composted soil verses topsoil. Throughout the process, students recorded the data in classroom journals, and later displayed the information in appropriate graphs and charts.

MATERIALS AND RESOURCES:

- Blocks and black plastic (horticulture)
- Food wastes (cafeteria)
- Sawdust (industrial arts/technology education)
- Thermometers (science)
- Manure (animal science)

COMMENTS:

Because of class activities (tests, assemblies, etc.), we encountered problems in collecting cafeteria waste on a daily basis. Alternative collection plans need to be arranged at the beginning of such a project.

BUILDING AN OUTDOOR CLASSROOM

SCHOOL/DISTRICT:

Charlotte High School
Charlotte County Schools

CONTACT PERSON:

Debbie Marsh
Charlotte High School
1250 Cooper Street
Punta Gorda, FL 33950
941/639-2118

SUBJECT/PROGRAM AREA(S):

Agriculture
Biology
Drafting
English
History
Mathematics
Technical Studies

GRADE(S):

10

DESCRIPTION:

One block of 10th-grade students are constructing an outdoor classroom, consisting of a deck floor, benches, and picnic tables. This project integrates English, history, math, biology, drafting, technical studies, and agriculture. The entire block of 125 students had several meetings and decided the best way to integrate all subjects was to form committees.

INSTRUCTIONAL ACTIVITIES:

The committees that were formed and their responsibilities make up the instructional aspect of the project:

- Science: studying the environmental aspects of building and agriculture
- Finance: providing bookkeeping skills, estimate for lumber, and letter writing
- Writers: developing a "how to" book
- History: developing a timeline of the history of the high school
- Public relations: writing letters, memos, and articles for various media
- Drafting: drafting plans
- Laborers: building the classroom

MATERIALS AND RESOURCES:

The instructors wrote a grant to receive partial funding for this project; the rest of the cost will be covered by the school and donations.

COMMENTS:

We are really still just learning as we go. We wanted this to be a student-oriented project with students making the decisions about what to do, how to do it, and when to do it.

BUILDING A SHIP

SCHOOL/DISTRICT:

Charlotte High School
Charlotte County Schools

CONTACT PERSON:

Debbie Marsh
Charlotte High School
1250 Cooper Street
Punta Gorda, FL 33950
941/639-2118

SUBJECT/PROGRAM AREA(S):

Art
Drafting
English
History
Mathematics
Science

GRADE(S):

10

DESCRIPTION:

The project of building and sinking a ship was incorporated into a history unit on pre-World War I.

INSTRUCTIONAL ACTIVITIES:

While studying pre-World War I in history, students in English read "A Night to Remember," a story about the sinking of the Titanic, and in science class they learned about icebergs. Incorporating drafting, art, and mathematics, students learned about measuring and drawing to scale, and teams of students designed and built "ships." Students also made ice with which to sink the "ships."

MATERIALS AND RESOURCES:

- Library and classroom reference books
- Fish tank (for sinking the ships)

COMMENTS:

BUSINESS EDUCATION/ENGLISH INTERDISCIPLINARY ACTIVITIES

SCHOOL/DISTRICT:

Orange County Schools

CONTACT PERSON:

Diane Culpepper, Business Technology Consultant
Donna Miller, Language Arts Consultant
Orange County Public Schools
445 West Amelia Street
Orlando, FL 32801
407/849-3200

SUBJECT/PROGRAM AREA(S):

Business Education
English/Language Arts

GRADE(S):

9–12

DESCRIPTION:

Throughout the district, English and business education teachers have collaborated to enrich and make more relevant their students' learning in both subject areas.

INSTRUCTIONAL ACTIVITIES:

- Developed the school's course curriculum guide (Winter Park High School).
- Designed time travel brochures to utilize desktop publishing skills and to make medieval literature come alive (Boone High School).
- Used the library CD-ROM references (encyclopedias and thesaurus) over a network to help students prepare newspaper articles on specific cultures (Cypress Creek High School).
- Completed research papers for senior practicums (all high schools).

MATERIALS AND RESOURCES:

- WordPerfect word-processing software, PageMaker software for desktop publishing
- MS-DOS (Tandy) and IBM computers for hardware
- Compton's encyclopedia and Microsoft Bookshelf (CD-ROMs)

COMMENTS:

Since business and English teachers have similar educational backgrounds, there is a healthy respect and collegiality that develops. Teachers are able to teach more because they are not repeating assignments. Students can focus on the end product and think through solutions.

CAREER DAY THANK-YOU LETTERS

SCHOOL/DISTRICT:

St. Cloud High School
Osceola County Schools

CONTACT PERSON:

Cheryl Hallock
St. Cloud High School
2000 Bulldog Lane
St. Cloud, FL 34769
407/891-3100

SUBJECT/PROGRAM AREA(S):

Business Education
English

GRADE(S):

9–12

DESCRIPTION:

During the month of February, our school hosted "Career Day" for the student body of St. Cloud High School. One of the business classes had the opportunity to hear a presentation from a representative of Walt Disney World. The following day, those students composed thank-you letters to the guest speaker.

INSTRUCTIONAL ACTIVITIES:

Students composed, typed using a business letter format, and proofread their letters. Students were able to work in small groups during the composition and proofreading activities. These letters were then given to an English honors class for additional proofreading. Students checked for errors in grammar usage, content, run-on sentences, clarity, etc. Comments and suggestions were marked on individual letters. The letters were retyped, revised, and checked again for accuracy by students and teacher before being mailed to the guest speaker.

Vocational students learned to
- compose a thank-you letter to a local community leader,
- use critical-thinking skills and work in small groups (cooperative learning), and
- use proofreading skills and business etiquette.

English students learned to
- reinforce usage of grammar rules and
- apply proofreading skills.

MATERIALS AND RESOURCES:

Typing books as a reference and typing paper

COMMENTS:

This activity was a relevant real-life experience. The students were proud of their finished products.

CAREER SURVEY

SCHOOL/DISTRICT:

Sebastian River High School
Indian River County Schools

CONTACT PERSON:

Laura Kaufman
Sebastian River High School
9001 90th Avenue
Sebastian, FL 32958
407/589-9696

SUBJECT/PROGRAM AREA(S):

American History
English
Physics/Principles of Technology

GRADE(S):

11

DESCRIPTION:

In the American history class, students brainstormed about jobs/careers and charted their ideas into three categories: student jobs, parent jobs, and future jobs of interest to the students. In the English class, students discussed issues relating to jobs and the workplace. Then they formulated a survey about careers and asked people representing the different areas of professional, managerial, and entry-level jobs to complete the survey. During the principles of technology class, students integrated the raw data from the survey into a usable form and presented the information to other classes in the school.

INSTRUCTIONAL ACTIVITIES:

- Students practiced oral discussion skills and learned how to chart this information.
- Students formulated and conducted a survey and practiced oral communication.
- Students applied integration skills to produce and present documentation.

MATERIALS AND RESOURCES:

Computer software and hardware are required.

COMMENTS:

Analyzing and interpreting data based on a conducted survey is a format that can be used across all disciplines.

CHILD CARE LESSONS

SCHOOL/DISTRICT:

Apopka High School
Orange County Schools

CONTACT PERSON:

Martha Cooper, Tech Prep Coordinator
Apopka High School
555 West Martin Street
Apopka, FL 32712
407/889-4194

SUBJECT/PROGRAM AREA(S):

Child Care
Health Occupations

GRADE(S):

Preschool
10–12

DESCRIPTION:

Working together, students in child care and health occupations present lessons to preschoolers on a specific health topic.

INSTRUCTIONAL ACTIVITIES:

Health occupations students, working in teams, select a topic from the following list and develop a lesson to be presented to preschoolers:

Skeleton—naming bones of body
Listening to heartbeat with stethoscope
What should you do in the morning (morning duties)
Hand washing and germs
How to make a first aid box
How to brush your teeth
Ambulance—Show & Tell about ambulances
How germs are spread
Safety
Care of bug bites, sunburn
Games for the sick child
Foods for the sick child
Talk about injections (shots)—why it's important
Going to the doctor or dentist
Field trip to hospital

The child care students assist the health occupations students during the lesson presentation, which is videotaped.

MATERIALS AND RESOURCES:

Video camera, recorder, and tape

COMMENTS:

The video presentation is used to evaluate the student's performance according to the following criteria: clarity of material, age appropriateness, and creative presentation.

CHILDREN'S BOOK

SCHOOL/DISTRICT:

Pinellas County Schools

CONTACT PERSON:

Regina Lawrence, Curriculum Integration Specialist
Pinellas County Public Schools
301 Fourth Street SW
Largo, FL 34649
813/586-1818

SUBJECT/PROGRAM AREA(S):

Business Education
Child Care
English/Language Arts

GRADE(S):

Prekindergarten
9–12

DESCRIPTION:

A student project was designed to create a children's book that could be read to prekindergarten children, to help students understand that reading is an essential skill for lifelong learning, and to provide prekindergarten children with role-model readers.

INSTRUCTIONAL ACTIVITIES:

- The child care students prepared a lesson on early childhood development and presented it to students in the English class. In addition, they shared with the English class the format and topics usually included in prekindergarten books.
- Students in the English class, using cooperative learning groups, created rough drafts of children's books. (The number of cooperative learning groups determines the number of children's books developed.)
- The rough drafts were submitted to students in the word-processing class who produced the final copy. Word-processing students used a variety of word-processing and graphic arts software packages to publish "The Book."
- The English class students read the books to the child care class students who, in turn, read the books to the prekindergarten children.

MATERIALS AND RESOURCES:

Computers, scanners, and laser printers

COMMENTS:

Students were evaluated on the story content, the prekindergarten children's understanding of the story, and their teamwork skills as well as the completed project.

CHILDREN'S STORY-PRODUCTION

SCHOOL/DISTRICT:

Zephyrhills High School
Pasco County Schools

CONTACT PERSON:

Jim Davis, Principal
Zephyrhills High School
6335 12th Street
Zephyrhills, FL 33540
813/782-9551

SUBJECT/PROGRAM AREA(S):

Art
Child Development
English
Social Studies

GRADE(S):

9–12

DESCRIPTION:

This interdisciplinary activity gives high school students the opportunity to design stories for pre-elementary age children while learning about the stages of child development.

INSTRUCTIONAL ACTIVITIES:

- The family and consumer sciences teacher and students discuss forms of child development.
- The English teacher and students discuss elements of short stories, read stories, and identify elements.
- The students select children's storybooks and analyze their age appropriateness as well as the ways they help children develop socially, physically, emotionally, and intellectually.
- The social studies teacher talks about the impact of stories and nursery rhymes on political society.
- Teachers assign a topic on which students write a child's story with crayons on construction paper, including cutout pictures.
- The students type story on computer using one of MECC software programs and illustrate the story.
- A storyteller or librarian discusses storytelling techniques with the students.
- The students read the original stories to age-appropriate children at a local day care, nursery, or elementary school.

MATERIALS AND RESOURCES:

- Children's storybooks and short story collections
- Computer
- Art supplies

COMMENTS:

A CHILD'S WORK IS PLAY!

SCHOOL/DISTRICT:

Apopka High School
Orange County Schools

CONTACT PERSON:

Martha Cooper, Tech Prep Coordinator
Apopka High School
555 West Martin Street
Apopka, FL 32712
407/889-4194

SUBJECT/PROGRAM AREA(S):

Child Care
English/Applied Communication

GRADE(S):

Prekindergarten
10–12

DESCRIPTION:

The objective of this activity is to give students experience in researching, planning, organizing, and presenting creative activities for the preschool class. The activity is designed for one semester, nine weeks for preparation and nine weeks for implementation.

INSTRUCTIONAL ACTIVITIES:

- The students in child care classes research and prepare age-appropriate activities and information related to cognitive, psychomotor, and affective areas of the average four-year-old. They plan and prepare a video presentation of the four-year-olds' class in session and relate specific characteristics associated with development; the video is shown to the applied communication students.
- After viewing the child care students' presentation, Applied Communication II students choose an area of personal interest and devise a unit to share/teach to the preschool class.
- On a rotating basis, the applied communication students teach their lessons and are evaluated on their oral presentations in terms of appropriateness, interest, and applicability.
- The child care instructor talks to the applied communication students about the importance of child care in our society and its future implications. The applied communication teacher will work with the child care students on speaking skills and speech preparation.

MATERIALS AND RESOURCES:

- Applied communication students: materials for note taking, researching, and constructing lessons for preschoolers; television and VCR (if needed)
- Child care students: current research/articles on child care, age-appropriate materials, video camera and tapes, materials for student-produced visual aids

COMMENTS:

Applied communication students are evaluated during their presentations to the preschool students, while students enrolled in child care are evaluated on their presentations to the applied communication class.

CHILD TOY SAFETY -

SCHOOL/DISTRICT:

Ridgewood High School
Pasco County Schools

CONTACT PERSON:

Wendell Krinn
Ridgewood High School
7650 Orchid Lake Road
New Port Richey, FL 34653
813/847-3060

SUBJECT/PROGRAM AREA(S):

Chemistry I
Child Development

GRADE(S):

10–12

DESCRIPTION:

Students enrolled in chemistry and child development classes work together to determine the safety of children's toys.

INSTRUCTIONAL ACTIVITIES:

- Guest speaker from the Toy Safety Commission speaks to child development students.
- Child development students read news articles on toy safety and establish safety criteria.
- Chemistry students obtain lists of toxic materials.
- Chemistry students do chemical analysis of imported toys for lead or toxic materials in paints.
- Groups of students evaluate three toys using chemical analysis and other safety criteria.
- Students prepare a report of the findings and share the information with local organizations interested in toy safety.

MATERIALS AND RESOURCES:

Children's toys and chemical analysis equipment

COMMENTS:

"CLIFF NOTE CLONES"

SCHOOL/DISTRICT:

Orange County Schools

CONTACT PERSON:

Diane Culpepper, Business Technology Consultant
Donna Miller, Language Arts Consultant
Orange County Public Schools
445 West Amelia Street
Orlando, FL 32801
407/849-3200

SUBJECT/PROGRAM AREA(S):

Business Education
English/Language Arts

GRADE(S):

9–12

DESCRIPTION:

Business and English teachers in several high schools throughout the district designed a project to increase the number and enjoyment of books read by students. The students' assignment was simple—read a novel and then write and design "Cliff Notes" for that novel.

INSTRUCTIONAL ACTIVITIES:

English teachers permitted each student to select a novel to read. Students, working alone or in cooperative learning groups, would then create Cliff Notes for the novel, including summarizing the plot and designing a cover. The activity was completed in the business computer lab, where a variety of software packages were available.

MATERIALS AND RESOURCES:

- MS-DOS (Tandy) and MacIntosh computers, scanners, and laser and color printers
- PageMaker page layout software and a variety of graphic arts software packages

COMMENTS:

Teachers used several criteria in approving the novels to be read; an especially important criterion was that no professionally developed Cliff Notes were already available for the book. Both English and business teachers evaluated the completed projects, and the Cliff Notes clones were displayed in the library for the student body and faculty to enjoy.

COLLECTING DATA IN MATHEMATICS

SCHOOL/DISTRICT:

Lyman High School
Seminole County Schools

CONTACT PERSON:

Peter Gorman, Principal
Lyman High School
1141 Southeast Lake Avenue
Longwood, FL 32750
407/831-5600

SUBJECT/PROGRAM AREA(S):

Business Mathematics
Mathematics/Applied Mathematics

GRADE(S):

9–12

DESCRIPTION:

Applying mathematics concepts to "real-world" situations, the students designed an experimental taste test of cola preferences.

INSTRUCTIONAL ACTIVITIES:

After studying graphs and charts, the students designed an experimental taste test of cola preferences. They conducted a taste testing with another teacher's class and the school office personnel. After collecting the data, the students calculated the percentages for each sample preference and, from the percentages, created line and pie graphs. This project incorporated scientific methods and mathematics skills.

MATERIALS AND RESOURCES:

- Small paper cups
- Two or three different brands of cola
- Graph paper

COMMENTS:

As a follow-up to this activity, the students discussed the concepts they learned and compared the project to the marketing conducted by businesses in the community.

COMMUNITY REACTION TO HEALTH REFORM LEGISLATION

SCHOOL/DISTRICT:

Ft. Pierce Westwood High School
St. Lucie County Schools

CONTACT PERSON:

Wayne Gent, Principal
Ft. Pierce Westwood High School
1801 Panther Lane
Ft. Pierce, FL 34947
407/468-5465

SUBJECT/PROGRAM AREA(S):

English
Health Occupations
Mathematics
Social Studies

GRADE(S):

10–12

DESCRIPTION:

Interdisciplinary teams of students interviewed adults in the community to determine local reactions to President Bill Clinton's health-care reform bill. The interviews included adults of all ages (early 20's through elderly) who represented many occupational areas, including doctors, insurance representatives, nursing home personnel, etc.

INSTRUCTIONAL ACTIVITIES:

Students researched the health-care reform bill thoroughly and then designed the survey instrument, making sure the questions were broad enough to collect all the information they were seeking. After learning about proper interviewing techniques, the students administered the survey to a predetermined number of people in the community. Data was collected, analyzed, and graphed. A group report was then written.

MATERIALS AND RESOURCES:

- Student-designed survey instrument
- Identification of appropriate audience to survey

COMMENTS:

An extension activity could be students making an oral presentation of their findings to the city/county commission.

COMPOST PROJECT -

SCHOOL/DISTRICT:

South Fork High School
Martin County Schools

CONTACT PERSON:

Dan Mollette
Academy of Agritechnology
South Fork High School
10205 SW Pratt & Whitney Road
Stuart, FL 34997
407/287-9810

SUBJECT/PROGRAM AREA(S):

Agriculture
English
History
Mathematics
Science

GRADE(S):

10–12

DESCRIPTION:

The purpose of this project is to inform students about the necessity of waste management, to have students gain first-hand knowledge on compost construction, to educate students on the elements in a compost pile, and to have students strengthen record-keeping and problem-solving skills. Each group of students creates and monitors a compost bin, pile, or tumbler.

INSTRUCTIONAL ACTIVITIES:

- Begin discussion in science by having students list problems with waste disposal. Encourage them to arrive at solutions for problems, thus introducing composting and its definition.
- In the math class, have students design a compost bine, a compost pile, and a tumbler for actual use. After the compost bine is built, have students take temperatures of the compost and keep a log for use in mathematics.
- In the history class, introduce background information on the "founders" of composting; discuss different countries that compost out of necessity; and perform a Guided Reading Procedure (GRP) on "Composting: Nature's Recycling Program" (see *Consumer Reports*, February 1994, pp. 112–113).
- In the English class, have students create a pamphlet on composting for different age groups and keep a comparison/contrast log on different composts.
- In the math class, as need arises, review the relation to composting: percentages, charts, graphs, volume, and ratios.
- In the agriculture class, discuss necessary ingredients for compost creation, advantages to crop growth, and the effects of citrus crops and gardens.

MATERIALS AND RESOURCES:

Materials for building the compost

COMMENTS:

CREATING A TRAVEL BROCHURE

SCHOOL/DISTRICT:

Charlotte High School
Charlotte County Schools

CONTACT PERSON:

Debbie Marsh
Charlotte High School
1250 Cooper Street
Punta Gorda, FL 33950
941/639-2118

SUBJECT/PROGRAM AREA(S):

Biology
English
Introduction to Computers
Personal Fitness

GRADE(S):

9

DESCRIPTION:

As a joint project for English, introduction to computers, personal fitness, and biology classes, students were asked to create a travel brochure for Charlotte, Lee, and DeSoto Counties.

INSTRUCTIONAL ACTIVITIES:

The brochure was to include maps, attractions from each county with paragraph descriptions, fitness centers in the area, a description of the environment, and an endangered species description.

MATERIALS AND RESOURCES:

- Photographs from magazines or newspapers
- Drawings
- CD-ROM research
- Word processor
- Phone books
- Markers or crayons

COMMENTS:

This project was fun for the students. They enjoyed being able to "create."

DEALING WITH DATA—APPLIED MATHEMATICS

SCHOOL/DISTRICT:

Apopka High School
Orange County Schools

CONTACT PERSON:

Ninette May, Mathematics Teacher
Apopka High School
555 West Martin Street
Apopka, FL
407/889-4194

SUBJECT/PROGRAM AREA(S):

Business Education
Health Occupations
Home Economics
Mathematics
Technology Education

GRADE(S):

9–12

DESCRIPTION:

To help them understand that all occupational areas deal with data, mathematics students were given a writing assignment on one of the following topics: heart attacks, accidents caused by drunk driving, date rape, teenage pregnancy, safety in the workplace, and computers in the workplace.

After interviewing the vocational teacher whose program area related to the topic, each student developed a survey instrument, administered the survey, analyzed the data, charted and graphed the data, and presented their findings to both the mathematics and appropriate vocational classes.

INSTRUCTIONAL ACTIVITIES:

The student completed the following assignments on his or her selected topic:

- Developed a survey questionnaire of at least 5 questions and surveyed at least 25 people.
- Wrote a research paper (minimum of 2 pages) on the topic.
- Developed a poster chart with survey results.
- Designed a graph (line, bar, or circle) with survey results.
- Made an oral presentation to the math class and appropriate vocational class.

MATERIALS AND RESOURCES:

The student could use any resources available, including the applied mathematics module.

COMMENTS:

The students were evaluated according to the following scale:

Survey questionnaire	10 points	Research paper	25 points
Survey chart	10 points	Class presentation	10 points
Survey graph	10 points		

DEM' BONES

SCHOOL/DISTRICT:

Jackson Academy of Applied Technology
Jackson County Schools

CONTACT PERSON:

Diane Grice
Jackson Academy of Applied Technology
3932 Technology Circle
Marianna, FL 32448
904/482-9666

SUBJECT/PROGRAM AREA(S):

English
Health Occupations

GRADE(S):

10–12

DESCRIPTION:

As a joint two-part project between English and health occupations classes, teams of students design board games to teach the major bones of the human body to middle school students and develop promotional strategies to market the game.

INSTRUCTIONAL ACTIVITIES:

Part I: The teams of students (4 maximum) design a board game to teach the major bones of the human body to middle school students. In two days teams must research information about the bones and design the board game, using any tools, equipment, or materials they wish but not spending more than $5.00 on supplies.

Part II: As a team, students have one day to write a business letter to the Vice President for New Development for Toys R' Us to sell the team's new board game.

MATERIALS AND RESOURCES:

- Library and classroom references
- Computers
- Any equipment or tools within the school

COMMENTS:

Extension Activities: Teams could play each board game and prepare a written critique for each. Students could give the board games to middle school students to play. Their critiques might be interesting.

DINNER THEATER -

SCHOOL/DISTRICT:

Key West High School
Monroe County Schools

CONTACT PERSON:

Alma Olson, Principal
Key West High School
2100 Flagler Avenue
Key West, FL 33040
305/293-1549

SUBJECT/PROGRAM AREA(S):

Agriculture
Business Education
Construction Trades
Drama
Home Economics
Music

GRADE(S):

9–12

DESCRIPTION:

As a culminating year-end activity, teachers from six departments at Key West High School planned and implemented this interdisciplinary activity that ran for eight performances. The dinner theater was advertised throughout the community and open to everyone.

INSTRUCTIONAL ACTIVITIES:

Students in all programs areas were included in the preplanning of this activity. A realistic budget, which included projected costs and an acceptable minimum level of projected revenue (ticket sales and ads), was developed. All program areas were responsible for ticket sales, ad solicitation, and cost studies.

Once the play was selected, the following activities were completed by various departments:

- Drama students auditioned for the various parts, and the cast was set.
- Music students provided the accompaniment.
- Students enrolled in construction trades designed and built the props and scenery for the play.
- Business students designed and produced the dinner theater's program. Ads were solicited from the community and designed by the students using a variety of graphic arts and word-processing software packages.
- Business students also maintained and balanced the dinner theater's books.
- Students enrolled in agriculture designed and provided the table arrangements.
- Home economics students prepared and served the meals at all performances.

MATERIALS AND RESOURCES:

- Script
- Music
- Materials for props and scenery
- Computer and appropriate software packages
- Plants and/or flowers
- Food and facilities for preparing it

COMMENTS:

This interdisciplinary activity requires months of preplanning.

DOCUMENT FORMATTING

SCHOOL/DISTRICT:

Grand Ridge High School
Jackson County Schools

CONTACT PERSON:

Don Wilson, Principal
Grand Ridge High School
6925 Florida Street, P.O. Box 208
Grand Ridge, FL 32442-0208
904/592-5161

SUBJECT/PROGRAM AREA(S):

Business Education/Keyboarding
Mathematics

GRADE(S):

9–12

DESCRIPTION:

To reinforce the mathematics involved in computing margins and other document formatting activities, the mathematics and business teachers reinforce the same concepts during the same time period.

INSTRUCTIONAL ACTIVITIES:

- The keyboarding teacher will teach paper size, type size, centering, margin setting, and document formatting.
- The math teacher will measure paper, teach characters per inch, and give students formatting exercises to figure in class.

MATERIALS AND RESOURCES:

Class materials and rulers

COMMENTS:

"DON'T DRINK AND DRIVE"

SCHOOL/DISTRICT:

Osceola County Schools

CONTACT PERSON:

Mary Cantrell, Vocational Director
Osceola County Schools
703 Simpson Road
Kissimmee, FL 34744
407/344-5030

SUBJECT/PROGRAM AREA(S):

Art
Automotive
Business Education
Criminal Justice
English/Language Arts
Foreign Language
Health Occupations
Journalism
Mathematics
Social Studies

GRADE(S):

9–12

DESCRIPTION:

This schoolwide and community integration unit focuses on convincing students not to drink and drive. It is suggested that this unit be implemented several weeks before the prom.

INSTRUCTIONAL ACTIVITIES:

The sheriff's office works with the school staff to simulate a situation on the school campus—two cars have wrecked and there are multiple injuries and one death in an alcohol-related accident. The following activities are carried out:

- Criminal justice students investigate the crash, conduct mock DUI testing, and prepare initial accident-scene report.
- Health occupations students perform emergency aid, CPR, etc.; write the autopsy report; and complete medical records.
- English classes write news articles about the wreck (3rd person), letters to friends about the wreck (1st person), editorials, and the obituary.
- Business students input data received from English and health occupations students.
- Social studies students research the economic impact of DUI.
- Automotive students prepare written estimates on the damaged cars.
- Art students develop posters/buttons/graphics on drinking and driving.
- Foreign language students translate information about the accident into other languages.
- Mathematics students measure skid marks and calculate car speed.

MATERIALS AND RESOURCES:

The cars are donated by the sheriff's office or by business partners.

COMMENTS:

This schoolwide activity could be expanded to include all departments.

ENGLISH RESEARCH PAPER

SCHOOL/DISTRICT:

Lyman High School
Seminole County Schools

CONTACT PERSON:

Peter Gorman, Principal
Lyman High School
1141 Southeast Lake Avenue
Longwood, FL 32750
407/831-5600

SUBJECT/PROGRAM AREA(S):

English/Language Arts

GRADE(S):

11–12

DESCRIPTION:

In an effort to help students learn about careers and begin to narrow their choices, the research paper required by English III now focuses on a career of the student's choice.

INSTRUCTIONAL ACTIVITIES:

Career Education Each student chooses a career he or she is interested in and gathers research/explores that career.

Library Skills Media specialists show students the available information/materials.

Career Center Occupational specialist takes students through *Choices*, a career-exploration computer program, and introduces them to the Career Center and Gateway.

Personal Interview Each student must interview someone in the chosen career. Students learn how to interview, and then they write thank-you notes to the interviewees.

Written Work All steps of the research process are emphasized.

MATERIALS AND RESOURCES:

- Library reference materials
- Computers and printers
- Media specialists
- Occupational specialist

COMMENTS:

Since changing the focus of the research paper to careers, the teacher has seen a marked improvement in the quality of the students' products.

FIELD TRIP TO BUSCH GARDENS

SCHOOL/DISTRICT:

Apopka High School
Orange County Schools

CONTACT PERSON:

Ninette May
Apopka High School
555 West Martin Street
Apopka, FL 32712
407/889-4194

SUBJECT/PROGRAM AREA(S):

Agriculture
Mathematics/Applied Mathematics
Physics/Principles of Technology

GRADE(S):

11–12

DESCRIPTION:

Seeing "physics in action" is the purpose of this joint field trip to Busch Gardens. Joint teams of students from the various classes are challenged to find examples of physics and mathematics concepts being used at the park.

INSTRUCTIONAL ACTIVITIES:

The teams of students design an oral presentation with graphics to explain three or four physics and mathematics concepts that are employed in the theme park. The follow-up activities at school (prior to the oral presentation) include researching the concepts and graphically displaying the information.

MATERIALS AND RESOURCES:

Students may use any visuals they design for their joint presentation.

COMMENTS:

Students enjoyed the day at Busch Gardens as they looked for "physics in action."

FLORIDA STUDIES

SCHOOL/DISTRICT:

Charlotte High School
Charlotte County Schools

CONTACT PERSON:

Debbie Marsh
Charlotte High School
1250 Cooper Street
Punta Gorda, FL 33950
941/639-2118

SUBJECT/PROGRAM AREA(S):

Biology
English
Introduction to Computers

GRADE(S):

9

DESCRIPTION:

Across three disciplines, teachers use the same thematic unit on Florida.

INSTRUCTIONAL ACTIVITIES:

In English, students read *Cross Creek;* in biology, the students studied Florida plants (from the Cross Creek area); and in introduction to computers, the students researched and prepared the reports.

The integrated assignments included
- the development of a Florida travel brochure
- a famous Floridian research paper
- a plant research paper
- a field trip to Edison Home Botanical Gardens

MATERIALS AND RESOURCES:

- On-line research
- CD-ROM encyclopedia research
- Research paper format

COMMENTS:

This was a very successful quarter-long project.

FOLLOWING DIRECTIONS

SCHOOL/DISTRICT:

Lemon Bay High School
Charlotte County Schools

CONTACT PERSON:

Virginia Chears and Greg Krupa
Lemon Bay High School
2201 Placida Road
Englewood, FL 34224
941/629-4552

SUBJECT/PROGRAM AREA(S):

Automotive
English

GRADE(S):

11–12

DESCRIPTION:

English classes and automotive classes joined forces to learn the importance of clear directions.

INSTRUCTIONAL ACTIVITIES:

A guest speaker was brought into the classes to talk about technical writing. The students then discussed clear directions and how to write them.

The advanced automotive students demonstrated how to change a tire while the English students took notes on the process. In groups of four, the English students created a set of directions. In one English class, the automotive instructor selected the best set of directions in the class, and English students tried to do the tire rotation based on those directions. In the other English class, he chose an average set of directions and the students who did not write them tried to follow these directions.

MATERIALS AND RESOURCES:

Technical writer for a guest speaker

COMMENTS:

This particular exercise was conducted with an automotive program, but it can be done between any English class and any vocational program.

It was great fun, and the students really learned something about how they write.

FOLLOW-UP STUDENT SURVEY

SCHOOL/DISTRICT:

Ft. Pierce Westwood High School
St. Lucie County Schools

CONTACT PERSON:

Larry Smith, Guidance Chair
Ft. Pierce Westwood High School
1801 Panther Lane
Ft. Pierce, FL 34947
407/468-5400

SUBJECT/PROGRAM AREA(S):

Business Education/Office Technology
Guidance/Research
Mathematics

GRADE(S):

9–12

DESCRIPTION:

In an effort to provide "hard data" from which the administration and faculty can make curricular changes and improvements, the guidance department used students to conduct a follow-up study of the previous year's graduates. The purpose of the study was to determine if former students were following their stated postsecondary goals six months after graduation.

INSTRUCTIONAL ACTIVITIES:

Working with teachers in the English, business, and mathematics departments, the guidance team identified selected students to work on the follow-up project. Instructional activities included the following:

- Research methods
- Statistics/analysis
- Report writing

The students developed the survey instrument to be used, collected the data from the graduates, and prepared and presented the survey report to the School Improvement Team.

MATERIALS AND RESOURCES:

- Student access to names, addresses, and telephone numbers of previous year's graduates
- Survey instrument developed by students in consultation with teachers and counselors

COMMENTS:

This makes a good science fair project for behavioral sciences.

HOSPITAL IMAGE SURVEY

SCHOOL/DISTRICT:

DeSoto County High School
DeSoto County Schools

CONTACT PERSON:

Jim Harrison and Betty Brown
DeSoto County High School
1710 East Gibson Street
Arcadia, FL 33821
941/494-3434

SUBJECT/PROGRAM AREA(S):

Business Education/Office Technology
English

GRADE(S):

12

DESCRIPTION:

When DeSoto Memorial Hospital needed to find an inexpensive way to conduct an image survey, the staff asked business students to collect the data instead of contracting with a professional telephone solicitor.

INSTRUCTIONAL ACTIVITIES:

Students participating in the project were coached on face-to-face interviewing techniques, telephone etiquette, and basic public-relations skills. Mock face-to-face interviews and telephone interviews were conducted to help the students develop their skills and self-confidence. During a three-week period, students gathered 996 surveys, analyzed the data collected, and prepared a report as well as an executive summary of the DeSoto Memorial Hospital Image Survey.

MATERIALS AND RESOURCES:

Telephone banks were established in the business department, as well as computers with Microsoft spreadsheets.

COMMENTS:

An excellent "real-world" activity that takes the classroom into the community.

HUNGRY HOUNDS COOKIE COMPANY

SCHOOL/DISTRICT:

Auburndale High School
Polk County Schools

CONTACT PERSON:

Nancy Pope and Vernon Cagle
Auburndale High School
1 Bloodhound Trail
Auburndale, FL 33823-2602
941/965-6200

SUBJECT/PROGRAM AREA(S):

Economics
Family and Consumer Sciences

GRADE(S):

10–12

DESCRIPTION:

Through the integration of a nutrition class and an economics class, the "Hungry Hounds Cookie Company" was created. The intent of this partnership was to develop a total understanding of the American capitalistic system. The company was created, organized, and controlled by high school students. Total quality management (TQM) principles were used in this project.

INSTRUCTIONAL ACTIVITIES:

- During the first week of the school year, students in the two classes did a market survey of the student body, using a series of student-designed surveys. After analyzing the data, they determined that cookies would be very popular.
- Students then established management and support teams, and all aspects of a business were considered: production, advertising, sales, and finances.
- The production team developed an assortment of cookie designs, and the advertising team launched a massive campaign using audiovisuals, posters, and newspapers. The sales department created order blanks and sales charts. A logo was designed, calendars printed, and control charts were created.

MATERIALS AND RESOURCES:

- Cookie ingredients
- Materials for various advertisements
- Sales/order blanks

COMMENTS:

In order to adhere to federal regulations concerning the sale and consumption of food items during school hours, the company "staff" took orders before school and delivered them at the end of the school day. The production and delivery continued throughout the year.

HYBRID TOMATOES

SCHOOL/DISTRICT:

Crystal River High School
Citrus County Schools

CONTACT PERSON:

Lisa Merritt, Biology Teacher
Crystal River High School
1205 NE 8 Avenue
Crystal River, FL 32629
904/795-4641

SUBJECT/PROGRAM AREA(S):

Agriculture
Biology

GRADE(S):

9–10

DESCRIPTION:

This joint year-long, hands-on activity, written up in the *Florida/Agriculture News*, provided biology and agriculture students the opportunity to study "applied genetics."

INSTRUCTIONAL ACTIVITIES:

Using seeds provided by the University of Florida, the agriculture students planted Florida Gold and Florida Basket tomatoes. Once the seeds grew to seedlings, the biology students transplanted 20 of each type. The agriculture students cared for the plants, and the biology students measured their growth. As a joint activity, the students cross-pollinated the plants.

Once the plants bore fruit, the agriculture students harvested the fruit, dried the seeds, and replanted them. This time, they just let the plants grow. The second crop of tomatoes were all red.

Students kept daily/weekly logs on this activity. Since communication skills are essential, the students logs were graded for grammar, sentence structure, clarity, and scientific content.

MATERIALS AND RESOURCES:

Seeds were provided by the University of Florida. All other materials were provided by the agriculture department.

COMMENTS:

Because this was a year-long project, the two teachers found it necessary to meet periodically and discuss the progress being made. Adjustments were made to their initial plan as needed.

INTEGRATING SPANISH INTO THE ACADEMIES

SCHOOL/DISTRICT:

St. Cloud High School
Osceola County Schools

CONTACT PERSON:

Lynne Plew
St. Cloud High School
2000 Bulldog Lane
St. Cloud, FL 34769
407/891-3100

SUBJECT/PROGRAM AREA(S):

Agriculture
Business Education
Criminal Justice/Legal
Health Occupations
Marketing/Tourism
Spanish

GRADE(S):

9–12

DESCRIPTION:

St. Cloud High School has expanded its academy offerings to include agriculture, business, legal, medical, and tourism. The foreign language department is actively integrating its language program into all academies. It has consulted with business leaders and school personnel to determine the language needs of each particular area, and foreign language courses were designed to meet each academy's needs.

INSTRUCTIONAL ACTIVITIES:

Instructional activities will include
- role-playing activities/skits,
- on-site, targeted-language experience using learned phrases from class,
- writing and producing brochures in Spanish for academies, and
- work-site observation and utilization of the foreign language needs.

MATERIALS AND RESOURCES:

- Video camera
- Color copier
- Resource contacts in the community

COMMENTS:

Developing "applied" foreign language courses in conjunction with academy needs will help students understand the importance of incorporating a foreign language into a planned program of study.

"IT'LL HUFF AND PUFF AND BLOW YOUR HOUSE DOWN!"

SCHOOL/DISTRICT:

Cocoa High School
Brevard County Schools

CONTACT PERSON:

Alexandra Penn, Academy Coordinator
Cocoa High School
2000 Tiger Trail
Cocoa, FL 32926
407/633-3511

SUBJECT/PROGRAM AREA(S):

Art
Computer Literacy
English/Language Arts
Mathematics
Science
Social Studies
Technology

GRADE(S):

9–12

DESCRIPTION:

Skills from various disciplines are covered in this technology learning activity that focuses on designing and building a scale model of a structure. The design should include a rough draft, scale drawing, and final draft; the structure must not leak, collapse, or disintegrate during wind/weather testing.

INSTRUCTIONAL ACTIVITIES:

The students are given the following situation statement: "A force 5 hurricane (180 mph winds) has destroyed your home. The land is still intact, and you want to rebuild from scratch. Insurance will pay for the project if it incorporates better building codes for areas prone to hurricanes and floods."

They must keep a log of research, interviews, calculations, materials used, and expenses. Photographs of the step-by-step levels of completion will be submitted with the final draft.

Steps	*Time*	*Steps*	*Time*
Identify problem	1 day	Construct	2 weeks
Gather information	2 weeks	Test	2 days
Explore ideas	2 days	Modify design	2 days
Plan/design	2 weeks	Present/evaluate	2 days

MATERIALS AND RESOURCES:

With teacher approval, traditional hand tools and others with which the student has demonstrated both proficiency and safety

COMMENTS:

Evaluation Criteria: Design (must match final product), cooperative contribution, thoroughness of research, research-solution-connection, model, testing, and presentation of final product

JOB INTERVIEWS

SCHOOL/DISTRICT:

Dunedin High School
Pinellas County Schools

CONTACT PERSON:

Millie Reed, Principal
Dunedin High School
1651 Pinehurst Road
Dunedin, FL 34698
813/733-2116

SUBJECT/PROGRAM AREA(S):

Business Education
English/Language Arts
Exceptional Education

GRADE(S):

9–12

DESCRIPTION:

During the eight days for this project, teachers from the three program areas implement a variety of activities including discussions, drills, and role playing so students understand the interviewing process. Students have an opportunity to experience a simulated job interview in order to successfully interview and be interviewed.

INSTRUCTIONAL ACTIVITIES:

Students from the smallest class of each subject area meet in a designated classroom. The teachers take turns presenting the materials to the large group of combined students. Activities include discussions, drills, and role playing, all centered around the interviewing process. During this time, all students must develop a cover letter, resume, and job application. The culminating activity is a formal interview that is conducted by the business teacher and videotaped by Media Center staff.

MATERIALS AND RESOURCES:

- Employability skills materials available in the three program areas
- Computers/printers in the business department
- Videotaping equipment available through the media center

COMMENTS:

All three teachers will evaluate each student's performance during the videotaped interviews. The evaluation will also involve the student's level of excellence as shown through the application, cover letter, and resume.

JOB SHADOWING

SCHOOL/DISTRICT:

Manatee High School
Manatee County Schools

CONTACT PERSON:

Patty McClain
Manatee High School
1000 - 32nd Street, West
Bradenton, FL 34205
813/746-7181

SUBJECT/PROGRAM AREA(S):

Chemistry
Physics/Principles of Technology

GRADE(S):

10–12

DESCRIPTION:

In an effort to help students link school to the "real world," a one-day job-shadowing activity is conducted every grading period.

INSTRUCTIONAL ACTIVITIES:

At our school, students hear and read about many careers. Our teachers make a concerted effort to relate the academic concepts taught in class to careers throughout our community. Wanting students to see the academic concepts they are learning about come "alive" in an occupation, we developed a job-shadowing experience for each grading period.

Students are asked each quarter to select a career of their choice that uses the physics or chemistry concepts that were taught during that grading period. Initial contact is made with the business by the student and follow-up information is mailed out by the instructor. The student "shadows" this career person for one full day (considered a field trip).

The student prepares a report on the job-shadowing experience and presents it to the class.

MATERIALS AND RESOURCES:

Occupational specialist
Community resources
Personal business contacts

COMMENTS:

This activity is used in chemistry and physics/principles of technology classes, but could be used in any or all classes.

JOBS AND PLANNING FOR THEM

SCHOOL/DISTRICT:

Tampa Bay Tech High School
Hillsborough County Schools

CONTACT PERSON:

Deborah Kirk
Mel Ross
Tampa Bay Tech High School
6410 Orient Road
Tampa, FL 33610-9438
813/744-8360

SUBJECT/PROGRAM AREA(S):

Business Education/Accounting
English

GRADE(S):

10–12

DESCRIPTION:

This project is a joint assignment for accounting and English.

Students learn how to read the classified section of the newspaper and write a letter of application, using keyboarding and English skills. Students also use reading and comprehension skills to find out about job qualifications.

INSTRUCTIONAL ACTIVITIES:

The students select ads from the classified section for accounting. They compare the ads, select the best job to apply for, and write letters of application. They research the occupations, determining the educational requirements, and compare the requirements to their own current status. The final activity is the student developing an "action plan" for gaining those requirements.

MATERIALS AND RESOURCES:

- Newspaper
- *Occupational Outlook Handbook*
- Library reference books

COMMENTS:

This joint activity could be with English and any vocational area.

JOINT RESEARCH PAPER

SCHOOL/DISTRICT:

Charlotte High School
Charlotte County Schools

CONTACT PERSON:

William Mascle, Robert Patterson, and Suzanne Gilleo
Charlotte High School
1250 Cooper Street
Punta Gorda, FL 33950
941/639-2118

SUBJECT/PROGRAM AREA(S):

Biology
Business Education/Keyboarding
English

GRADE(S):

9

DESCRIPTION:

Biology, English, and business teachers combine an assignment in which students produce a research paper.

INSTRUCTIONAL ACTIVITIES:

In conjunction with the English and business teachers, the biology teacher assigns a paper to be written on topics such as rainforests, estuaries, recycling, and endangered species. The English teacher grades grammar and composition, the keyboarding teacher grades format, and the biology teacher grades content.

MATERIALS AND RESOURCES:

- Library resources
- Field trip to Charlotte Harbor Estuary at Ponce De Leon Park
- Computers in business department

COMMENTS:

The time limit for this was a month and a half (6 weeks). Because everything was incorporated, the students learned a great deal. The English teacher is now searching for literature (short stories) to coincide with the materials.

A JOURNEY INTO THE UNKNOWN

SCHOOL/DISTRICT:

Apopka High School
Orange County Schools

CONTACT PERSON:

Martha Cooper, Tech Prep Coordinator
Apopka High School
555 West Martin Street
Apopka, FL 32712
407/889-4194

SUBJECT/PROGRAM AREA(S):

English/Applied Communication
Mathematics/Applied Mathematics
Physics/Principles of Technology

GRADE(S):

10–12

DESCRIPTION:

Students were given the opportunity to learn about vectors, to share information they had gathered in several different lab activities, and then to develop a creative story illustrating the use of vectors in a simulated situation.

INSTRUCTIONAL ACTIVITIES:

- The principles of technology instructor talked to applied communication students about the applicability of vectors in everyday life. Students in Applied Mathematics II conducted several different laboratory activities on vectors.
- After the lesson(s) on vectors were completed, the students used the information to write a creative story illustrating the use of vectors in a simulated situation. Students had to incorporate the data used in the applied math lab in the story, and the story had to be written in a way that a casual reader with little background information could follow the story line without difficulty.

MATERIALS AND RESOURCES:

- Guidelines for written work established by the school
- Computers, word-processing software, printer

COMMENTS:

As part of the evaluation, each teacher read the creative story for subject content, appropriate format, grammar, usage, and organization.

LEADERSHIP QUALITIES

SCHOOL/DISTRICT:

Tampa Bay Tech High School
Hillsborough County Schools

CONTACT PERSON:

Chakriya Farnham
Tampa Bay Tech High School
6410 Orient Road
Tampa, FL 33610-9438
813/744-8360

SUBJECT/PROGRAM AREA(S):

English

GRADE(S):

11

DESCRIPTION:

An English teacher uses literature from two different cultures and time periods to help students identify leadership qualities. This assignment helps students develop reading, critical-thinking, and vocabulary skills.

INSTRUCTIONAL ACTIVITIES:

Students are given the following assignments:

Read from "The Iroquois Constitution," pages 29–30 in the Prentice Hall literature textbook *American Experience*. In the constitution, Dekanawidah outlines the qualities he expects the Iroquois lords to possess. What qualities do you think the leaders of a contemporary society should possess? Explain your answer.

Read the *Wall Street Journal* article of Tuesday, November 1, 1994, "A Good Executive Is a Matter of Nature, Not Nurture." Compare the qualities of the leaders of the business world stated in the article with those outlined by Dekanawidah and your answer to the first reading assignment.

Students, individually or in groups, prepare oral presentations to the class about qualities of leaders.

MATERIALS AND RESOURCES:

- "A Good Executive Is a Matter of Nature, Not Nurture," *The Wall Street Journal*, Tuesday, November 1, 1994
- "The Iroquois Constitution," *American Experience*, pp. 29–30, Prentice Hall
- Resource materials in the library

COMMENTS:

LEARNING MAJOB BONES OF THE HUMAN BODY

SCHOOL/DISTRICT:

Jackson Academy of Applied Technology
Jackson County Schools

CONTACT PERSON:

Gwen Conner
Jackson Academy of Applied Technology
3932 Technology Circle
Marianna, FL 32448
904/482-9666

SUBJECT/PROGRAM AREA(S):

Health Occupations

GRADE(S):

10–12

DESCRIPTION:

This activity is used to facilitate learning of the major bones of the human body. This activity can be adapted for muscles and other anatomical structures.

INSTRUCTIONAL ACTIVITIES:

- The teacher will allow students 20–30 minutes for a partnership review of a labeled handout of major bones.
- The students will then divide into groups.
- A team member goes to the front of the room and draws a labeled sticky note from the pad and places it on the skeleton. (A different team member must go to the front of the room during each round.)
- If the team member identifies the bones correctly, the team scores a point.
- If a point is not scored, the sticky note goes to the back of the pad and the game continues until all bones are identified.

MATERIALS AND RESOURCES:

- Handout of labeled bones (one per student)
- Skeleton model or large laminated chart
- Overhead used for keeping score
- Sticky note pad with the name of a major bone written on each page

COMMENTS:

Treats for the winning team

LEARNING THE MEANING OF "DISABLED"

SCHOOL/DISTRICT:

Apopka High School
Orange County Schools

CONTACT PERSON:

Martha Cooper, Tech Prep Coordinator
Apopka High School
555 West Martin Street
Apopka, FL 32712
407/889-4194

SUBJECT/PROGRAM AREA(S):

Business Law
Dropout Prevention (School-within-a-School)
Health Occupations

GRADE(S):

9–12

DESCRIPTION:

To help the health occupations students understand the meaning of "disabled," the teacher initiated an activity that simulated disabled students surviving in the real world.

INSTRUCTIONAL ACTIVITIES:

- The business law teacher discussed with the health occupations students the laws that have been enacted to help disabled individuals.
- The ninth-grade School-within-a-School (SWAS) students became "disabled" for a day. They agreed to share with the health occupations students their feelings and findings about life at Apopka High School as a disabled student.
- The health occupations students created the SWAS students' disabilities—they provided crutches for several students, bandaged/splinted students' arms and legs, and blindfolded some students.
- The health occupations students stayed with the SWAS students throughout the day, making notes on facility inconveniences, other people's comments/biases, etc.
- The next day, the SWAS students and health occupations students discussed their experiences.
- The health occupations students wrote a report outlining the day's activities and their findings.

MATERIALS AND RESOURCES:

"Disabling" supplies from health occupations

COMMENTS:

Both the SWAS and health occupations students learned the inconveniences and biases disabled persons encounter every day. Several good suggestions about facility improvement were made as a result of this activity.

LINEAR RELATIONSHIPS OF MAJOR BONES

SCHOOL/DISTRICT:

Jackson Academy of Applied Technology
Jackson County Schools

CONTACT PERSON:

Martha Compton
Jackson Academy of Applied Technology
3932 Technology Circle
Marianna, FL 32448
904/482-9666

SUBJECT/PROGRAM AREA(S):

Health Occupations
Mathematics

GRADE(S):

9–12

DESCRIPTION:

This is an activity used to show a linear relationship between the major bones of males and females.

INSTRUCTIONAL ACTIVITIES:

Divide the class into teams of four and provide each team with a copy of the referenced activity sheet. The teams are to complete the activity sheet problems, and then determine if the linear equations used in the activity work for all members of the group. The students will measure their four major bones and substitute the measurements into the equations to determine each student's correct height.

MATERIALS AND RESOURCES:

Mathematics in Forensic Science Activity Sheet (Knill, George, Mathematics in Forensic Science. *Applications of secondary school mathematics: Readings from the mathematics teacher, 91*, 31–32).

COMMENTS:

A follow-up activity could be the team writing a report on its findings of the linear relationship between the major bones of males and females.

LINEAR RELATIONSHIPS OF THE CRANIUM TO A PERSON'S HEIGHT

SCHOOL/DISTRICT:

Jackson Academy of Applied Technology
Jackson County Schools

CONTACT PERSON:

Martha Compton
Jackson Academy of Applied Technology
3932 Technology Circle
Marianna, FL 32448
904/482-9666

SUBJECT/PROGRAM AREA(S):

Health Occupations
Mathematics

GRADE(S):

9–12

DESCRIPTION:

Health occupations students are given the following assignment:

"You have been hired by the State of Florida Forensic Medicine Team. You have been asked to determine if there is a relationship between the circumference of the cranium to the height of a living person. If a relationship is found, you will be asked to write the linear equation that could be used by the forensic team when skeletons are found."

INSTRUCTIONAL ACTIVITIES:

Divide the class into groups of four. (The best groups to use are two females and two males or four people of the same gender.) Each team is to determine the close relationship of the circumference of the cranium to that of the height of the living person.

MATERIALS AND RESOURCES:

Linear equations
Metric tape

COMMENTS:

An extension of this activity might be to find relationships between other bones of the living body and write linear equations to show their relationships.

LINKING MATH AND SCIENCE WITH NUTRITION

SCHOOL/DISTRICT:

Santa Fe Community College

CONTACT PERSON:

Ric Ledbetter and Karen Sitren
Santa Fe Community College
3000 NW 83rd Street
Gainesville, FL 32606
904/395-5007

SUBJECT/PROGRAM AREA(S):

Biology/Applied Biology and Chemistry
Chemistry/Applied Biology and Chemistry
Health Occupations
Mathematics/Applied Mathematics

GRADE(S):

11–12

DESCRIPTION:

The natural link between the concepts taught in applied mathematics and applications in biology/chemistry classes was exhibited by the students' study of nutrition and diet. While science provided the knowledge, math served as a tool in calculating personal dietary elements.

INSTRUCTIONAL ACTIVITIES:

Studying nutrition in applied biology/chemistry classes enabled the students to better understand personal diet. Nursing students, in their final semester at Santa Fe Community College, made a classroom presentation with specifically designed visuals to the applied biology/chemistry class. The students then kept a food journal for the week. In applied math, they calculated both their calories and fat intake, determining their average percent of fat calories.

MATERIALS AND RESOURCES:

Information was provided in *CORD's Applications in Biology/Chemistry* unit on nutrition. Additional hands-on activities were employed. The students completed the calorie counting lab found in the *CORD Applied Math*, Unit 5, Dealing with Data. Using a calorie counter book that listed fat grams, students completed a math lab specifically designed for this learning activity.

COMMENTS:

The students applied both math and science concepts through a personal understanding of diet and nutrition and were better able to see the connection of skills.

MAKING AN ORAL REPORT

SCHOOL/DISTRICT:

Grand Ridge High School
Jackson County Schools

CONTACT PERSON:

Don Wilson, Principal
Grand Ridge High School
6925 Florida Street, P.O. Box 208
Grand Ridge, FL 32442-0208
904/592-5161

SUBJECT/PROGRAM AREA(S):

Agriculture
English
Mathematics
Science

GRADE(S):

9–12

DESCRIPTION:

Focusing on improving students' oral communication skills, teachers jointly planned their lessons to focus on student presentations.

INSTRUCTIONAL ACTIVITIES:

- The English teacher presents a unit on making an oral presentation: content, purpose, audience, and delivery. The students select a topic and deliver oral presentations in class.
- The agriculture teacher presents an agriculture-related lesson and assigns content-specific topics for oral report presentations.
- The science teacher assigns science-related topics for oral report presentations.
- The math teacher has students prepare and present oral reports on given topics using props, aids, etc.

MATERIALS AND RESOURCES:

Any classroom, library, or community resources and materials may be used.

COMMENTS:

This interdisciplinary focus on students' communication skills could be used with any or all disciplines.

MATHEMATICS AND AUTOMOTIVE

SCHOOL/DISTRICT:

Lyman High School
Seminole County Schools

CONTACT PERSON:

Dan Cannon, Chairperson
Mathematics Department
Lyman High School
1141 Southeast Lake Avenue
Longwood, FL 32750
407/831-5600

SUBJECT/PROGRAM AREA(S):

Automotive
Mathematics

GRADE(S):

10–12

DESCRIPTION:

Through collaborative efforts, the mathematics and auto mechanics teachers have designed several activities that help students understand how mathematics is used daily by the auto mechanic.

INSTRUCTIONAL ACTIVITIES:

The following activities reinforce workplace uses of mathematics:

- Mathematics teachers take a "field trip" to the auto mechanic shop to demonstrate how mathematic concepts, such as the volume of a cylinder, are used in the workplace.
- The auto mechanics teacher serves as a guest lecturer in the mathematics class to give students practical examples of ratio and proportion.

MATERIALS AND RESOURCES:

Auto mechanics teacher and lab

COMMENTS:

The mathematics teachers are collaborating with vocational teachers on the Lyman High School campus and finding a variety of ways to offer "real-world" occupational applications of mathematics.

MATHEMATICS AND CARPENTRY

SCHOOL/DISTRICT:

Lyman High School
Seminole County Schools

CONTACT PERSON:

Dan Cannon, Chairperson
Mathematics Department
Lyman High School
1141 Southeast Lake Avenue
Longwood, FL 32750
407/831-5600

SUBJECT/PROGRAM AREA(S):

Carpentry
Mathematics

GRADE(S):

10–12

DESCRIPTION:

Through collaborative efforts, mathematics and carpentry teachers are discussing ways to show students the use of mathematics in the construction trades. The following ideas were developed and used by the collaborative team of teachers.

INSTRUCTIONAL ACTIVITIES:

Consider the following suggestions to bring more occupational relevancy to mathematics classes:

- Explain slope as it relates to a roof.
- Give the following homework assignment: How many squares of shingles does it take to cover your house?
- Because all carpenters know that $6 + 8 = 10$ (Pythagorean theorem), ask the carpentry instructor to be a "guest lecturer" in the mathematics class to explain the use of the Pythagorean theorem.
- Give the following group assignment: When making a cypress clock, how do you know where to put the numbers?
- Since carpenters know how to read blueprints, ask the carpentry instructor to talk to students about scale drawings.
- Borrow fulcrums to demonstrate moments in algebra.

MATERIALS AND RESOURCES:

Resources are available in the vocational department.

COMMENTS:

Collaborative efforts are helping teachers find ways to show students the relevancy of academics. Ask your vocational teachers to brainstorm with you.

MATHEMATICS AND ELECTRONICS

SCHOOL/DISTRICT:

Lyman High School
Seminole County Schools

CONTACT PERSON:

Dan Cannon, Chairperson
Mathematics Department
Lyman High School
1141 Southeast Lake Avenue
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SUBJECT/PROGRAM AREA(S):

Electronics
Mathematics

GRADE(S):

9–12

DESCRIPTION:

Through collaborative efforts between mathematics and electronics teachers, several activities were changed to show students the use of mathematics in the field of electronics.

INSTRUCTIONAL ACTIVITIES:

The following activities are used in mathematics classes:

- Build a parallel DC circuit to show $\frac{1}{RT} = \frac{1}{R1} + \frac{1}{R2} + \frac{1}{R3} + \ldots$
- Borrow a capacitor meter. You can show absolute value or you can discuss tolerance, upper and lower limits, and percentages.
- Build a circuit on the computer. You can use Ohm's law to show how equations are solved, and use it for direct variation problems.
- Borrow the oscilloscope to show sine curves, amplitude, period, and frequency.

MATERIALS AND RESOURCES:

Equipment is available in the electronics department.

COMMENTS:

Mathematics teachers are able to show students real-world applications of mathematics concepts.

MATHEMATICS AND MASONRY

SCHOOL/DISTRICT:

Lyman High School
Seminole County Schools

CONTACT PERSON:

Dan Cannon, Chairperson
Mathematics Department
Lyman High School
1141 Southeast Lake Avenue
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407/831-5600

SUBJECT/PROGRAM AREA(S):

Masonry
Mathematics

GRADE(S):

10–12

DESCRIPTION:

Joint planning between the masonry and mathematics teachers has resulted in the development of several activities that could be used by mathematics teachers.

INSTRUCTIONAL ACTIVITIES:

Collaborative activities include:

- Rather than just figuring out the area of a wall, have students figure how many bricks or cement blocks it will take to make it.
- When mixing cement, masons must know the proper ratio of sand, water, and gravel. The masonry instructor can talk to the mathematics students about ratios.
- The masonry instructor can talk to the math students about how to determine cubic yards of material needed for a "job."
- Reality in the workplace is that a certain percentage of error or waste must be taken into consideration when ordering material. Ask the masonry students to talk to the mathematics students about calculating the percentage of error/waste.

MATERIALS AND RESOURCES:

Resources are available in the vocational classes.

COMMENTS:

When the masonry students at Lyman were constructing the school sidewalks, mathematics students interviewed them about the mathematics used in the project. The interviewers made oral presentations on their findings to the math classes.

When teachers have the opportunity to share and plan together, rich interdisciplinary activities can result.

SCHOOL/DISTRICT:

Lyman High School
Seminole County Schools

CONTACT PERSON:

Dan Cannon, Chairperson
Mathematics Department
Lyman High School
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Longwood, FL 32750
407/831-5600

SUBJECT/PROGRAM AREA(S):

American Government
Drafting
Drivers' Education
Mathematics
Student Organizations/Clubs

GRADE(S):

9–12

DESCRIPTION:

Through collaboration, teachers designed several activities that show students how mathematics is used in all disciplines.

INSTRUCTIONAL ACTIVITIES:

- Drivers' education teachers have students plan a trip as part of their curriculum. This activity can reinforce the concept of scale drawings. When teachers from several discipline areas reinforce a mathematics concept such as this, students begin to see the application of the concept beyond mathematics class.
- When the elections are close, how to read data from graphs and charts, percentage of error, and accuracy of polls are discussed in mathematics classes. Involve the American government teacher, too.
- At any time of the year, there is some student organization/club selling something. Working with that club sponsor, demonstrate linear programming to algebra students.
- The drafting teacher will probably have a transit. Arrange for the drafting students to show the mathematics students how geometry and trigonometry are used in "real life."
- Have the mathematics and carpentry students build models to help students understand linear, square, and cubic measure.

MATERIALS AND RESOURCES:

Some resources are available in the vocational department; other activities require a daily newspaper or the time of other teachers.

COMMENTS:

Opportunities for teachers to talk to each other pay off.

MENTORING PROJECT

SCHOOL/DISTRICT:

Vero Beach High School
Indian River County Schools

CONTACT PERSON:

Deborah Harwell
Academy Coordinator
Vero Beach High School
1707 - 16 Street
Vero Beach, FL 32960
407/778-7000

SUBJECT/PROGRAM AREA(S):

Business Education
Dropout Prevention

GRADE(S):

4
9–12

DESCRIPTION:

The Classroom of the Future, the district's dropout prevention classroom, is a special classroom for at-risk fourth graders. These students are being mentored by high school students who are enrolled in the Performance-Based Diploma program (the high school's dropout prevention program). The high school students are employed by the Academy of Entrepreneurship, a student-run thrift shop.

INSTRUCTIONAL ACTIVITIES:

High school students mentor and visit elementary students once a week at the elementary school site. The older students help the fourth graders begin their own business—a school store. Elementary and high school students make crafts to sell in the store and collect thrift shop items for the store. High school students teach the younger students how to run a business successfully. They learn about competitive pricing, quality control, and maintaining inventory, and serve as clerks and cashiers during the hours the store is open.

MATERIALS AND RESOURCES:

- High school students to serve as mentors
- Vacant storage space for the store
- $40 start-up money for craft supplies

COMMENTS:

Mentoring opportunities give the high school students increased self-esteem and provide the elementary students with role models who are demonstrating the importance of staying in (or returning to) school.

MODERN DAY *MACBETH*

SCHOOL/DISTRICT:

Lyman High School
Seminole County Schools

CONTACT PERSON:

Peter Gorman, Principal
Lyman High School
1141 Southeast Lake Avenue
Longwood, FL 32750
407/831-5600

SUBJECT/PROGRAM AREA(S):

English/Language Arts

GRADE(S):

12

DESCRIPTION:

In an effort to help students understand how the classics can provide insight into modern society, English teachers developed activities that relate classics like *Macbeth* to the 20th century.

INSTRUCTIONAL ACTIVITIES:

- Students in cooperative learning groups "translate" *Macbeth* into 20th-century vocabulary.
- Students in cooperative learning groups analyze the 20th-century application of people with a tragic flaw like Macbeth's; i.e., politicians, athletes, celebrities. Oral presentations and/or debates give the students an opportunity to strengthen their communication skills.

MATERIALS AND RESOURCES:

Copies of *Macbeth* or other classics

COMMENTS:

Either or both of these activities could be used with many pieces of literature.

MONTHLY NEWSLETTER FOR FACULTY

SCHOOL/DISTRICT:

Auburndale High School
Polk County Schools

CONTACT PERSON:

William Londeree, Principal
Auburndale High School
1 Bloodhound Trail
Auburndale, FL 33823-2602
813/965-6200

SUBJECT/PROGRAM AREA(S):

Business Education/Computer Applications
Economics/Honors

GRADE(S):

10–12

DESCRIPTION:

A monthly newsletter is designed and published by the students for the faculty.

INSTRUCTIONAL ACTIVITIES:

Students in the economics/honors class research and write articles of interest for the monthly newsletter. The students in business computer applications use desktop publishing software to prepare the newsletter. Current topics include:

- Fats in Fast Food
- Japanese Trade Practices: Impact on the Consumer of United States
- Buying Guide for New/Used Cars

MATERIALS AND RESOURCES:

Computers in business computer applications class

COMMENTS:

MUSIC AND ART THERAPY

SCHOOL/DISTRICT:

Ft. Pierce Westwood High School
St. Lucie County Schools

CONTACT PERSON:

Wayne Gent, Principal
Ft. Pierce Westwood High School
1801 Panther Lane
Ft. Pierce, FL 34947
407/468-5465

SUBJECT/PROGRAM AREA(S):

Art
Health Occupations
Music

GRADE(S):

10–12

DESCRIPTION:

Students from three different disciplines collaborate to design music and art therapy activities that could help rehabilitating patients at a local nursing home.

INSTRUCTIONAL ACTIVITIES:

- Health occupations students teach students in music and art classes about various kinds of therapy activities for rehabilitating patients.
- Teams of students from all three disciplines design and try out activities that could be used by patients.
- Groups of students make the appropriate arrangements and share the activities with local nursing-home patients.

MATERIALS AND RESOURCES:

Students can use any materials available in the three content areas.

COMMENTS:

MYSTERY LITERATURE

SCHOOL/DISTRICT:

Horace Mann Middle School
Dade County Schools

CONTACT PERSON:

Addea Colangelo, Language Arts Chairperson
Horace Mann Middle School
8950 NW Second Avenue
Miami, FL 33150
305/757-9537

SUBJECT/PROGRAM AREA(S):

Criminal Justice
English/Language Arts

GRADE(S):

7–12

DESCRIPTION:

Through mystery literature, students will learn the process of deduction from content and will apply reading and critical-thinking skills.

INSTRUCTIONAL ACTIVITIES:

After reading/viewing a selected mystery, listening to a guest speaker from a criminal lab, and visiting a criminal court to witness legal evidence used in the justice system, students (or cooperative learning groups) develop oral/written presentations on "Who did it . . . and how we figured it out!"

MATERIALS AND RESOURCES:

Suggested selections:

Novels	Agatha Christie mysteries
	Stephen King mysteries
Short Stories	Sir Arthur Conan Doyle's "Sherlock Holmes Mysteries"
	Edgar Allen Poe mysteries
Poetry	Edgar Allen Poe selections
Movies	"Ten Little Indians"
	"Silence of the Lambs"
Television	"Columbo"
	"Crime Stories"
	"Murder, She Wrote"
Game	"Clue"

COMMENTS:

A follow-up assignment could be a creative writing workshop. The students could create a crime situation and then write possible endings.

NUTRITION AND CEREAL

SCHOOL/DISTRICT:

Crystal River High School
Citrus County Schools

CONTACT PERSON:

Lisa Merritt, Biology Teacher
Crystal River High School
1205 NE 8 Avenue
Crystal River, FL 32629
904/795-4641

SUBJECT/PROGRAM AREA(S):

Biology
English
Marketing
Mathematics

GRADE(S):

9–12

DESCRIPTION:

Using cereal as the common theme, teachers from the different disciplines developed in-class activities that relate to the theme. These activities were presented to the same group of students (each student was concurrently enrolled in English, mathematics, and biology). After completing these activities, the teachers agreed that students did not need to be in concurrent classes for the activities to be effective.

INSTRUCTIONAL ACTIVITIES:

In English (or marketing) class, students designed their own cereal boxes with a corresponding advertising campaign. The cereal box side panel had to contain content information required by the government.

In biology, two activities were conducted with cereal:
- Student groups analyzed cereal and compared their analysis with the information provided on the cereal box.
- Another activity involved the nutrient content of cereal and mealworms. Student groups analyzed several different brands of cereal to determine the cereal with the best nutrients for mealworms.

In mathematics, students graphed the cereal nutrients from the label.

MATERIALS AND RESOURCES:

- In English, students were permitted to be creative in their cereal box design. Materials and resources were limited to a maximum of $5.00.
- In biology, students and teacher brought in a variety of cereal boxes.
- In mathematics, students used the cereal boxes brought into biology.

COMMENTS:

Though the activity did not require team teaching, interdisciplinary planning helped teachers see how to use one topic in different ways.

POETRY AND COOPERATIVE LEARNING GROUPS

SCHOOL/DISTRICT:

South Fork High School
Martin County Schools

CONTACT PERSON:

Virginia Wardle, English Teacher
South Fork High School
10205 SW Pratt & Whitney Road
Stuart, FL 34997
407/287-9810

SUBJECT/PROGRAM AREA(S):

English/Language Arts

GRADE(S):

9–12

DESCRIPTION:

Students read and interpret poetry in cooperative learning groups.

INSTRUCTIONAL ACTIVITIES:

Prior to this activity, students had to do individual interpretations of poems. The teacher introduced the "rules" of the cooperative learning activity:

- Each student in the group has a specific assignment. Student assignments included: a reader, someone to look up vocabulary words, a student to record any encouraging words that were said, a student to write the summary of the interpretation of the poem by the group, and one to read the summary of the poem to the class.
- Only one person in the group talks at a time.
- No one criticizes what another says.

The teacher selected six of Whitman's poems to interpret. Five students were assigned to each cooperative learning group, and each group decided on the individual assignments.

MATERIALS AND RESOURCES:

- Copies of the poems
- Dictionaries

COMMENTS:

Once the activity began, the class became student-focused, not teacher-centered. It was exciting to see students encouraging their peers and being active learners.

PREPARING MARKETING NEWSPAPER

SCHOOL/DISTRICT:

Apopka High School
Orange County Schools

CONTACT PERSON:

Martha Cooper, Tech Prep Coordinator
Apopka High School
555 West Martin Street
Apopka, FL 32712
407/889-4194

SUBJECT/PROGRAM AREA(S):

English/Applied Communication
Marketing

GRADE(S):

10–12

DESCRIPTION:

Students in Applied Communication II classes learn about writing from a journalist's perspective. Then they write their articles for the marketing newspaper in applied communication.

INSTRUCTIONAL ACTIVITIES:

The marketing instructor and/or a newspaper representative teaches applied communication students the basics of layout and design. The students then write their articles on simple desktop publishing software.

The marketing students review and peer edit the applied communication students' articles and include the final copy with their material to be printed by the town's newspaper staff.

MATERIALS AND RESOURCES:

Computers and desktop publishing software

COMMENTS:

The final product of the applied communication students are assessed using journalistic criteria. The marketing product is evaluated on its appropriateness for newspaper issue.

READING, WRITING, AND SPEAKING IN PHYSICAL EDUCATION

SCHOOL/DISTRICT:

Key West High School
Monroe County Schools

CONTACT PERSON:

Alma Olson, Principal
Key West High School
2100 Flagler Avenue
Key West, FL 33040
305/293-1549

SUBJECT/PROGRAM AREA(S):

English
Physical Education

GRADE(S):

9–12

DESCRIPTION:

Physical education teachers divide their students into cooperative learning groups to prepare a written report, make an oral presentation, and demonstrate a selected sport or game played in a country outside of North America.

INSTRUCTIONAL ACTIVITIES:

A list of sports or games played in various countries (and not played in North America) was developed by the physical education teachers. The list is limited so that at least three cooperative learning groups of three research each sport/game—providing a minimum of nine students who can participate in the demonstration of the sport/game.

Each cooperative learning group researches the sport/game and prepares a written report that includes the following information: history, geography (location), description of purpose, rules and regulations, terminology, drawings and charts, a biography of one of the sport's professional athletes, and a bibliography. The physical education teachers consulted with English teachers to make the written report requirements parallel the report requirements used in English.

Students are permitted to conduct the library research on alternating days during one week. Another week was given to the actual writing of the report, and, during week three, the cooperative learning groups made their oral presentations, followed by an actual demonstration of the sport/game.

MATERIALS AND RESOURCES:

- Library reference materials
- Computer, scanners, and printers

COMMENTS:

Reinforcing reading, writing, and speaking skills across the curriculum help students see that these competencies are essential and not just reserved for English class. This activity also gives students who are from other countries an opportunity to explain and demonstrate sports familiar to them.

RENAISSANCE FAIR

SCHOOL/DISTRICT:

Key West High School
Monroe County Schools

CONTACT PERSON:

Kathryn Hodgdon
Key West High School
2100 Flagler Avenue
Key West, FL 33040
305/293-1510

SUBJECT/PROGRAM AREA(S):

All Disciplines

GRADE(S):

9–12

DESCRIPTION:

All students participate in creating a Renaissance Fair. The purpose of the fair is to help students connect the Renaissance time period with a multiplicity of cultures, to develop associations between a variety of disciplines, and to become actively involved in learning.

INSTRUCTIONAL ACTIVITIES:

Instruction and activities to support these events have taken place in appropriate content area classrooms prior to the fair:

- Students and faculty are encouraged to attend the fair in costume appropriate to that time period.
- A Renaissance news sheet, prepared by journalism and business classes and emphasizing the flavor of language and events of the fair, is distributed to all students.
- The area is decorated with individual students' coat-of-arms developed after a study of traditional heraldic conventions and discussion of modern symbols.
- The band and choir provide musical entertainment, and the food preparation classes offer a Renaissance menu.

Ongoing Activities: Human chess game, Renaissance hairstyling, puppet shows, roving bands, scenes from Shakespeare, Medieval dance demonstrations, a Maypole, and games including Rat Pucking, Bean Bag Toss, Balance Beam Jousting, and a quest game, a Medieval version of Clue

MATERIALS AND RESOURCES:

Varies according to classroom project/activity.

COMMENTS:

When students are the prime planners and developers of the Renaissance Fair, with teachers from all disciplines acting as facilitators, student engagement is increased.

RESEARCH PAPER

SCHOOL/DISTRICT:

Apopka High School
Orange County Schools

CONTACT PERSON:

Martha Cooper, Tech Prep Coordinator
Apopka High School
555 West Martin Street
Apopka, FL 32712
407/889-4194

SUBJECT/PROGRAM AREA(S):

English/Applied Communication
Mathematics/Applied Mathematics
Physics/Principles of Technology

GRADE(S):

9–12

DESCRIPTION:

Students who are enrolled in applied communication and applied mathematics and/or principles of technology select a particular area of interest in the field of mathematics or physics, and for their applied communication class write a research paper.

INSTRUCTIONAL ACTIVITIES:

With the help of the math or science teacher, the student develops a hypothesis and a project that will test/prove the hypothesis. Students keep data and organize the project using the scientific method.

During applied communication, the students keep accurate data of the mathematics or science project in progress to serve as a basis for the math/science paper. Before doing the project, students research the relevant background information. Once all the data is acquired, the student writes the research/project paper using the *Publication Manual of the American Psychological Association* provided in the applied communication class. Students then schedule a time to present their projects/papers to a panel of teachers, preferably a teacher from each of the areas involved.

MATERIALS AND RESOURCES:

- American Psychological Association's *Publication Manual of the American Psychological Association.*
- Resources vary depending on project.

COMMENTS:

Students' papers and presentations in applied communication are evaluated on presentation, organization, mechanics, content, and interest. In applied mathematics or principles of technology, assessment of the same paper includes appropriateness of the application of the scientific method, the accuracy of measurement, and the believability of conclusions.

SAFETY VIDEOS -

SCHOOL/DISTRICT:

Lyman High School
Seminole County Schools

CONTACT PERSON:

Peter Gorman, Principal
Lyman High School
1141 South County Road 427
Longwood, FL 32750
407/831-5600

SUBJECT/PROGRAM AREA(S):

Television Production
Vocational/Technical Programs

GRADE(S):

10–12

DESCRIPTION:

Students enrolled in TV production work with teams of students from each vocational/technical area to design safety videos for each lab area.

INSTRUCTIONAL ACTIVITIES:

Students in each vocational/technical program area outline the steps for appropriate use of program equipment and identify the procedures to follow in case of an accident. Then they work with teams of students in TV production to script and shoot a safety video customized to their program area.

MATERIALS AND RESOURCES:

- TV production equipment
- Program-specific equipment brochures

COMMENTS:

In addition to learning about the equipment in their program area, students learn about TV production. The product is used throughout the year to orient new students.

SCHOOL/DISTRICT:

Lyman High School
Seminole County Schools

CONTACT PERSON:

Doreen Rochefort
Lyman High School
1141 Southeast Lake Avenue
Longwood, FL 32750
407/831-5600

SUBJECT/PROGRAM AREA(S):

Business Education
English/Language Arts
Graphic Arts

GRADE(S):

9–12

DESCRIPTION:

Incorporating communication and graphic skills, students design pamphlets, guides, or brochures that they think are of value to new students or visitors to their campus.

INSTRUCTIONAL ACTIVITIES:

Working in cooperative learning groups of three or four, the students determine what guides or pamphlets are necessary. In making the decision, the students must interview and/or survey fellow students, guidance counselors, administrators, and teachers; determine what is needed; and design the guide or pamphlet.

The students use technology and peer/team editing in designing the informational guides. The school prints the finished products and uses the guides/pamphlets/brochures for new students or visitors to campus.

Brochures designed this year included: a guide to guidance, the Gateway Center, and the Career Center at the school; an introduction to the school in general; technology available at the school; information about the sports program; club information; media technology guide; Homecoming Week; and a guide to the vocational programs available a Lyman High School.

MATERIALS AND RESOURCES:

- Student-designed surveys/interview forms
- Access to computer technology

For this to be a relevant project, money must be available for printing and duplicating the student-designed pamphlets so they may be used for the intended purpose.

COMMENTS:

Each year students will identify different topics for new brochures.

SENIOR AUTOBIOGRAPHIES

SCHOOL/DISTRICT:

Alachua County Public Schools

CONTACT PERSON:

Glen Moore, Vocational Supervisor
Alachua County Public Schools
620 East University Avenue
Gainesville, FL 32601
904/336-3600

SUBJECT/PROGRAM AREA(S):

English/Applied Communication
Graphic Arts

GRADE(S):

12

DESCRIPTION:

As a final senior project, students in the block class of applied communication and graphic arts publish the autobiographies of seniors in book form.

INSTRUCTIONAL ACTIVITIES:

Through English class, each student is asked to write his or her autobiography; peer editing ensures the articles are grammatically correct and ready for "the press." Using the scanner, students include photographs in the book. The publication is presented to seniors at graduation.

MATERIALS AND RESOURCES:

Computer, scanner, and printer

COMMENTS:

This project can easily be expanded to include students and teachers from other departments.

SENIOR PROJECT

SCHOOL/DISTRICT:

Polk County Schools

CONTACT PERSON:

David Lewis
Frostproof Middle/Senior High School
1000 North Palm Street
Frostproof, FL 33843-3532
941/635-2221

SUBJECT/PROGRAM AREA(S):

All Disciplines
Senior Project

GRADE(S):

9–12

DESCRIPTION:

The Frostproof High School Senior Project was implemented to integrate academic and vocational skills and to better prepare students for postsecondary education and the workforce. This project gives all seniors a firsthand view of a chosen career.

INSTRUCTIONAL ACTIVITIES:

Three stages are involved in senior projects:

- Research—Based on a career interest survey, students choose a topic to research related to a chosen career field.
- Practical Experience—Students participate in activities related to the career choice.
- Product—Students create a product related to the career field.
- Oral presentations—Students give a 10–15 minute presentation of the year-long project.

MATERIALS AND RESOURCES:

Based on a career interest inventory, students choose a topic to research related to the chosen career field. They participate in a variety of related experiential activities and present a final significant product through oral presentations. Evaluations include visuals, delivery, control, professional appearance, and attitude.

COMMENTS:

This project has been very successful.

SPACE: AN INTERDISCIPLINARY FRONTIER

SCHOOL/DISTRICT:

Cocoa High School
Brevard County Schools

CONTACT PERSON:

Alexandra Penn, Academy Coordinator
Cocoa High School
2000 Tiger Trail
Cocoa, FL 32926
407/633-3511

SUBJECT/PROGRAM AREA(S):

All Disciplines
Technology

GRADE(S):

9–12

DESCRIPTION:

Virtual Learning Activities (VLAs) enhance and enrich existing academic curriculum. These interdisciplinary activities help students discover the link between various subject areas and "real-world" applications. Activities allow students to actively experience learning while working in collaborative teams. Teacher collaboration will be needed to insure interdisciplinary integration.

Eleven teachers, two counselors, and two administrators from Cocoa High School spent two days career-shadowing NASA employees. On-the-job experiences at NASA supplied teachers with ideas for creating and implementing space industry-related VLAs. Lockhead Space Operations and NASA's Launch Operation Division worked cooperatively with educators to design the VLA booklet.

INSTRUCTIONAL ACTIVITIES:

The Virtual Learning Activities designed include:
- Packaging of sensitive items—"Protect the Pringle"
- Handling of hazardous commodities—"SAFE WAY"
- Designing/constructing a nonpower reentry vehicle—"Wings of Freedom"
- Designing/building a model that illustrates the area of earth—"A View from the Top"
- Launching a marketing campaign—"Cosmic Candy"

MATERIALS AND RESOURCES:

Materials and resources for individual VLAs are included in the guide. The materials necessary for using the VLAs are low in cost and high in availability.

COMMENTS:

Students, faculty, and NASA employees will be continually surveyed to assess perceived project effectiveness.

STUDYING THE FUNGI KINGDOM

SCHOOL/DISTRICT:

Charlotte High School
Charlotte County Schools

CONTACT PERSON:

Debbie Marsh
Charlotte High School
1250 Cooper Street
Punta Gorda, FL 33950
941/639-2118

SUBJECT/PROGRAM AREA(S):

Biology
Family and Consumer Sciences

GRADE(S):

9

DESCRIPTION:

While studying the fungi kingdom in biology, students will also be observing how yeast works in Family and Consumer Sciences.

INSTRUCTIONAL ACTIVITIES:

- Students will study the characteristics of the fungi kingdom including yeast and mold.
- Students will bake bread to observe how yeast works.
- Students will grow mold on the bread and observe the mold in the lab.

MATERIALS AND RESOURCES:

- Biology text, transparencies, and other visuals
- Ingredients for making bread
- Microscopes
- Plastic bags and cooking utensils

COMMENTS:

SURVEYING THE COMMUNITY

SCHOOL/DISTRICT:

Okeechobee High School
Okeechobee County Schools

CONTACT PERSON:

Phoebe Raulerson, Principal
Okeechobee High School
2800 Hwy 441, North
Okeechobee, FL 34972
941/763-3191

SUBJECT/PROGRAM AREA(S):

Business Education/Computer Applications

GRADE(S):

10–12

DESCRIPTION:

Students worked in teams to collect, analyze, and interpret raw data. Each group of students (4–5) identified a current issue on which they wanted to collect data. The issue could be school-based like the food choices in the cafeteria, or related to nonschool issues, like a community park. Every topic had to be approved by the teacher. The students developed an appropriate questionnaire and administered it to a predetermined number of people. The students collected and analyzed the data and determined the most effective way to present the information. Data was presented to a panel of teachers, administrators, and community partners in a formal manner, complete with graphs, recommendations, and conclusions.

INSTRUCTIONAL ACTIVITIES:

Students were given instructions on
- how to design questions for a questionnaire,
- how to tabulate raw data and how to report unsolicited information,
- how to objectively formulate conclusions, and
- how to present information, i.e., attractive folders, presentation page, etc.

The students were also given the opportunity to earn extra credit for dressing in business clothes and for having appropriate visual aids for the presentation.

MATERIALS AND RESOURCES:

Most students worked in WordPerfect 6.0; however, some students chose to use Microsoft Works. GBC binding, a method many businesses use for proposal submissions, was made available to the students.

COMMENTS:

Working with groups is always challenging. This project helps students realize how much organization is necessary to finish a project on time.

TECHNICAL PROGRAM BROCHURES

SCHOOL/DISTRICT:

Santa Fe Community College

CONTACT PERSON:

Karen Sitren
Santa Fe Community College
300 NW 83rd Street
Gainesville, FL 32606
904/395-5007

SUBJECT/PROGRAM AREA(S):

Automotive
Building Construction
Mathematics/Applied Mathematics
Zoo Animal Technologies

GRADE(S):

13

DESCRIPTION:

Researching his or her particular technical program, each college applied math (MTB 1310) student produced a pamphlet designed to provide prospective students with information about that program.

INSTRUCTIONAL ACTIVITIES:

In applied math, the students studied tables, graphs, and statistics. After gathering information and data about his or her technical program, each student designed and produced a pamphlet that included graphs and statistics. The students presented their pamphlets in math class.

MATERIALS AND RESOURCES:

The students used various resources to gather their information including the instructors and director of their technical program, the library, the campus research office, and other sources. The textbook, *College Mathematics for Technology*, and supplementary materials including the *Santa Fe Report* and the *Gainesville Sun* newspaper were used to learn the skills.

COMMENTS:

The quality of the pamphlets was impressive. The students learned about their technical fields and applied their math skills to display results.

TECHNICAL WRITING AND LITERATURE

SCHOOL/DISTRICT:

South Fork High School
Martin County Schools

CONTACT PERSON:

Virginia Wardle, English Teacher
South Fork High School
10205 SW Pratt & Whitney Road
Stuart, FL 34997
407/287-9810

SUBJECT/PROGRAM AREA(S):

English/Language Arts

GRADE(S):

9–12

DESCRIPTION:

After attending a workshop conducted by Florida Power and Light on "Effective Technical Writing" and learning about the MADE (Message/Action/Details/Evidence) format for business memo writing, an English teacher designed this student activity.

INSTRUCTIONAL ACTIVITIES:

After the class read the play *Raisin in the Sun*, the students took notes on business letter writing and then constructed a persuasive business letter centered around the play, using the MADE format. The letter was to be written from the white man's perspective to the black family, trying to convince the black family to sell their house back to the homeowner's association.

Using the school's computer lab, students typed their business letters. Through peer evaluation, students edited and revised the letters before submitting them to the teacher for grading.

MATERIALS AND RESOURCES:

- Copies of the play
- Computers and printers
- Information on MADE format

COMMENTS:

Using the MADE format, the teacher was able to link the modern workplace and education.

TELL ME A STORY!

SCHOOL/DISTRICT:

Apopka High School
Orange County Schools

CONTACT PERSON:

Martha Cooper, Tech Prep Coordinator
Apopka High School
555 West Martin Street
Apopka, FL 32712
407/889-4194

SUBJECT/PROGRAM AREA(S):

Child Care
English/Applied Communication

GRADE(S):

Preschool
11–12

DESCRIPTION:

In this project, students in applied communication classes work with students in child care to develop age-appropriate stories for preschool children.

INSTRUCTIONAL ACTIVITIES:

- Child care students share the video they developed about the average behavioral characteristics of preschool students with students in applied communication.
- The students in applied communication learn to use Writing and Publishing Center software for the purpose of teaching other students. They then take the information in picture form to the preschool class.
- Applied communication students interview the preschoolers, and, using the information from the discussion, develop a story that will be printed on a computer.
- Child care students work with applied communication students in editing the stories.

MATERIALS AND RESOURCES:

- Writing and Publishing Center software
- Paper, scissors, and glue

COMMENTS:

Each child in the preschool class will have a personalized copy of the story to take home and share with his or her family.

TOWER PROJECT

SCHOOL/DISTRICT:

Charlotte High School
Charlotte County Schools

CONTACT PERSON:

Debbie Marsh
Charlotte High School
1250 Cooper Street
Punta Gorda, FL 33950
941/639-2118

SUBJECT/PROGRAM AREA(S):

Art
Drafting
Physics/Principles of Technology

GRADE(S):

11–12

DESCRIPTION:

These program areas combine efforts to have students build, analyze, and test a tower made of popsicle sticks.

INSTRUCTIONAL ACTIVITIES:

As a joint project, teams of students complete the following learning activities:
- Design and draw tower
- Build tower with preliminary pretests
- Test tower to failure

A panel of teachers judge the best artistic tower as part of the team's grade.

MATERIALS AND RESOURCES:

- Drawing equipment (manual and CAD)
- Popsicle sticks and glue
- Testing machine

COMMENTS:

This activity provides an excellent opportunity for community involvement with the selection of the panel of judges.

A *WALDEN* EXPERIMENT, A TRANSCENDENTAL EXPERIENCE

SCHOOL/DISTRICT:

Lyman High School
Seminole County Schools

CONTACT PERSON:

Doreen Rochefort
Lyman High School
1141 Southeast Lake Avenue
Longwood, FL 32750
407/831-5600

SUBJECT/PROGRAM AREA(S):

All Disciplines
English/Language Arts

GRADE(S):

11–12

DESCRIPTION:

During the study of American Transcendentalism and Henry David Thoreau, students choose for their nine-week project an activity or activities that will help them to experience "The *Walden* Experiment." This activity can involve various other disciplines depending on the student's selection of activities.

INSTRUCTIONAL ACTIVITIES:

The following is information presented to the students:

Results of your experiment, in the form of photographs, scraps of evidence, and written evaluations, are to be kept in a scrapbook that will be graded at the end of the project. It is up to you to keep complete, scientific, and well-documented records. The means in which you contract for points in this project is between you and your parents or guardians. The list given here is only a list of suggestions; you are encouraged to bring in other ideas.

Camping (50–100 points)
This is probably the easiest way to get your points quickly. The amount of points gained will be tied to the depth of your true nature experience. For example, you are expected to bring and make your own food, to wear only natural clothing, to use only natural products, and to experience as fully as possible the Thoreau lifestyle. Of course, while camping you are expected to complete some of the activities—such as food preparation from scratch, reading, relaxing, and nature observation. Please don't camp alone.

Make Good from Scratch (10–20 points)
Points will vary according to the difficulty and amount prepared. Extra points will be given for authenticity and rural preparation as well as serving.

Observe Aspects of Nature (5–10 points)
The observation could include an animal or plant, or it could involve the observing of the sky, clouds, and stars.

Omit Television for One Week (10–20 points)
Replace this time with reading, conversation with family and friends, and meditation.

Omit Some Modern Convenience That Is Important to You (10–20 points)
This might mean giving up the phone, stereo, or other appliances.

Take Record of Your Expenses for a Week (5–10 points)
This also entails indicating those purchases that were necessary and those that were not necessary, along with an indication of how your spending habits could be simplified.

Make a Craft or Other Project by Hand (10–20 points)
Anything from woodworking to sewing to inventing is acceptable. The amount of points will depend on the depth, difficulty, and natural aspect of the creation.

Learn to Meditate through Relaxation Tapes or Other Means (10–20 points)
This will involve a step-by-step process that should be completed over time.

Bring in an Exercise Tape or Experiment to the Class (20–30 points)
Structure an activity and lead the class in it. The activity could involve a how-to or technique/experiment listed above. Approval must be obtained.

Take a Nature Walk (5–10)
While you are out on your minimum one-half-hour walk, note nature, collect samples, and observe nature's beauty.

MATERIALS AND RESOURCES:

Students design their own activities and provide related materials and resources.

COMMENTS:

The purpose of this activity is to have students emulate the Thoreau experience. CAUTION: Stress to students the importance of not putting themselves in dangerous situation.

WATER BALLOON LAUNCH

SCHOOL/DISTRICT:

St. Cloud High School
Osceola County Schools

CONTACT PERSON:

Jill Capen, Math Teacher
St. Cloud High School
2000 Bulldog Lane
St. Cloud, FL 34769
407/891-3100

SUBJECT/PROGRAM AREA(S):

Agriculture
Algebra II
Physics

GRADE(S):

10–12

DESCRIPTION:

Water balloons are an extended lesson designed to guide students in the discovery of the relationships of linear and quadratic functions, distance, time, velocity, and other applied physics principles. Using algebra skills, students apply the Pythagorean theorem, create graphs, and solve equations in order to make predictions about the behavior of a projectile when one variable changes. Afterward, they are given an opportunity to check just how accurate their predictions really are. This is a hands-on activity that provides students with a structured way to learn by experimentation.

INSTRUCTIONAL ACTIVITIES:

The algebra and physics students are asked to complete the following activities:

- Generate linear equations given the coordinate of two points or a point and the slope.
- Use quadratic models to describe appropriate nonlinear situations, such as velocity and acceleration, and graph the resulting equations.
- Find a line of best fit for real data represented in scatter plot.

The agriculture classes build the launch pads, with emphasis on measuring lengths, angles, and accuracy, and the use of tools.

MATERIALS AND RESOURCES:

- Launcher and launch pad
- Stopwatch
- Metric tape measure
- Water balloons and small cups

COMMENTS:

This unit will take two weeks to complete.

WORD PROCESSING/ENGLISH PROGRAM

SCHOOL/DISTRICT:

Orange County Schools

CONTACT PERSON:

Diane Culpepper, Business Technology Specialist
Orange County Public Schools
445 West Amelia Street
Orlando, FL 32801
407/849-3200

SUBJECT/PROGRAM AREA(S)

Business Education/Word Processing
English/Language Arts

GRADE(S):

11–12

DESCRIPTION:

Language arts and business teachers, wanting to avoid duplication and enhance both subject areas, developed a joint block-course of English and word processing. In preparation for the course, teachers sequenced the student performance standards and developed a guide for the teachers.

INSTRUCTIONAL ACTIVITIES:

The interdisciplinary word processing/English course is designed as a year-long block course. The teacher guide includes a correlation of performance standards, course outlines, and classroom activities. Suggestions for scheduling and recruiting of students, teacher assignment, and in-service activities are included in the guide.

MATERIALS AND RESOURCES:

The materials used in English III/IV and word processing remain the same. The essential component for the successful implementation of this joint course is common planning time for teachers so they will have the opportunity to develop joint projects/assignments and to continually update/upgrade their respective curricula.

COMMENTS:

For additional information, contact the program consultant.

WRITING ACROSS THE CURRICULUM IN HOME ECONOMICS

SCHOOL/DISTRICT:

Lyman High School
Seminole County Schools

CONTACT PERSON:

Peter Gorman, Principal
Lyman High School
1141 Southeast Lake Avenue
Longwood, FL 32750
407/831-5600

SUBJECT/PROGRAM AREA(S):

Business Education
English
Home Economics
Occupational/Technical Programs

GRADE(S):

9–12

DESCRIPTION:

After completing a home economics laboratory exercise, students write an evaluation of the activity. The evaluative report includes the nutritional value of the product or meal, a self-assessment of their performance and their lab partner's performance, and ways to improve any part of the lab activity. Of course, the lab critiques are evaluated in content, grammar, usage, and format. The home economics teacher worked with English and business teachers to present principles of effective writing to the students.

INSTRUCTIONAL ACTIVITIES:

Focusing on the importance of oral and written communication skills as essential for the modern workplace, this assignment, used throughout the school year, incorporates written communication and critical-thinking skills.

Once the students have completed their written evaluation of the laboratory exercise, students exchange papers and write an evaluation of each other's papers. They note omissions, incorrect information, improper grammar, and punctuation errors, and offer suggestions on how to improve the original written lab evaluation. This peer editing component has been well received by the students and has improved the overall written communication skills of all students in the class.

MATERIALS AND RESOURCES:

For this writing assignment, the only materials needed are paper and pencil or computers, if available.

COMMENTS:

Students need to be taught how to write an effective evaluative report. The quality of the student evaluations improved as this activity was continued throughout the year.

WRITING "REAL" LETTERS

SCHOOL/DISTRICT:

Lake Mary High School
Seminole County Schools

CONTACT PERSON:

Donna Whelchel
Lake Mary High School
655 Longwood/Lake Mary Road
Lake Mary, FL 32746
407/323-2110

SUBJECT/PROGRAM AREA(S):

English

GRADE(S):

9–12

DESCRIPTION:

This activity is designed to teach students the proper format and style of various letters as well as to give them experience in writing "real" letters about real issues.

INSTRUCTIONAL ACTIVITIES:

All letters will be written in class and are due the day after the assignment. Rough drafts are required for the two business letters.

Day 1: Introduction and discussion of letter samples. Write a letter to the editor of *The Orlando Sentinel* or any other publication. Do not seal the envelope.

Day 2: Write a personal letter (no rough draft is required), and seal the envelope. The grade will be based on the proper written address and return address form on the envelope.

Day 3: Write a letter to a business or to a government official. Do not seal the envelope.

The letter-writing grades are based on the use of proper form and the ability to follow instructions. No grade is given until the letters are addressed, stamped, and ready to mail. No credit is given for writing to fellow students.

MATERIALS AND RESOURCES:

Three 32-cent stamps, two business-size envelopes, stationary for the personal letter, and typing paper

COMMENTS:

Return address stickers or preprinted envelopes are not permitted for this assignment. No abbreviations, other than the official post office abbreviations for the names of states, may be used. Grades will be based on the forms used in the letter-writing packet.

WRITING SAMPLES FROM THE COMMUNITY

SCHOOL/DISTRICT:

Boone High School
Orange County Public Schools

CONTACT PERSON:

Cecelia Esposito
Boone High School
2000 South Mills Avenue
Orlando, FL 32806
407/898-5491

SUBJECT/PROGRAM AREA(S):

Business Education
English/Word Processing

GRADE(S):

12

DESCRIPTION:

As a class project, students identified and contacted businesses in the community to determine the types of written communication used. After sample packages of writing from each source were secured, students designed two assignments for classmates in both the English IV classroom and the business word processing lab. Students prepared final copies of all assignments and included the copies in their portfolios. Brochures they designed that described an overview of the writing program and thumbnail sketches and photographs of each student were also included in their portfolios. Each student had 12 original, professionally modeled writing assignments to show as samples of the depth and quality of both writing and word-processing skills.

INSTRUCTIONAL ACTIVITIES:

Instruction included the writing of business memos, the business letter of reply and request, and report writing in general. Special attention was given to the reading skills necessary to decode specific business writing and tailor appropriate response writing. Analysis of each sample of writing was done at the time the assignments were prepared, and emphasis was placed on the need for 100% perfect (error-free) final copy. The instructor was able to work with each student on usage, grammar, or sentence structure as well as style.

MATERIALS AND RESOURCES:

Each student provided a list of five possible business contacts to a class "master" list, and students selected contact sources from the list.

As a classroom resource, MacMillan's *Thinking and Writing Processes* was available.

COMMENTS:

Because the class made the decision to structure their own curriculum and take charge of the process, they learned more than if I had provided the same materials to them directly. Making contacts in the business community was a very important part of this unit.

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- Building an Outdoor Classroom, 15
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- Automotive "OSHA Inspectors," 8
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- Mathematics and Automotive, 57
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B

Biology
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- Building an Outdoor Classroom, 15
- Creating a Travel Brochure, 29
- Florida Studies, 37
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- Joint Research Paper, 48
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